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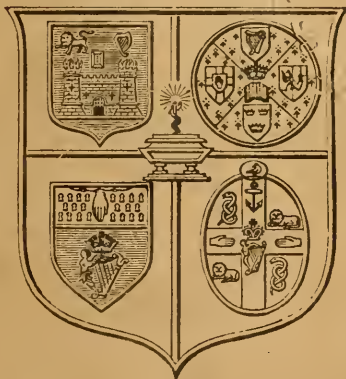
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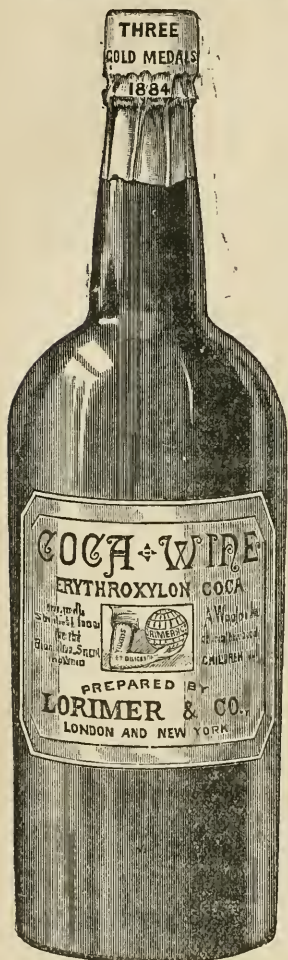
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*And other ALLIED DISEASES, see the following Literature:—*

- Dr. VESSALE (*Ctblatt. f. d. Med. Wiss.*, 1891, 174): TREATMENT OF DOGS AFTER THYROIDECTOMY.
- Dr. R. MURRAY (*Brit. Med. Journal*, 1891, ii., 797): TREATMENT OF MYXŒDEMA.
- Dr. M. MULKEN ("Year-Book of Treatment, 1891," 219): THYROID GRAFTING IN MYXŒDEMA.
- Mr. HURRY FENWICK (*Brit. Med. Journal*, 1891, ii., 797): DIURETIC ACTION OF THYROID GLANDS.
- Dr. HECTOR MACKENZIE (*Brit. Med. Journal*, 1893): TREATMENT OF MYXŒDEMA.
- Report of Edinburgh Medico-Chirurgical Society: CASES OF MYXŒDEMA AND PSORIASIS (Dr. BYROM BRAMWELL). MYXŒDEMA (Dr. A. F. DAVIES, LUNDIE, and MURRAY). SPORADIC CRETINISM (Dr. JOHN THOMSON) SUCCESSFULLY TREATED WITH THYROID GLANDS (*Brit. Med. Journal*, Feb. 25th, 1893).
- REVIEW OF THE SUBJECT. By Dr. P. WATSON WILLIAMS ("Medical Annual for 1893," Section for New Treatment, just issued).

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# THE DUBLIN JOURNAL OF MEDICAL SCIENCE.

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AUGUST 1, 1893.

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## PART I. ORIGINAL COMMUNICATIONS.

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ART. III.—*Notes of Two Cases of Cerebral Surgery.*<sup>a</sup> By CHARLES B. BALL, M.D., M.Ch. Dubl.; University Examiner in Surgery; Surgeon, Sir Patrick Dun's Hospital.

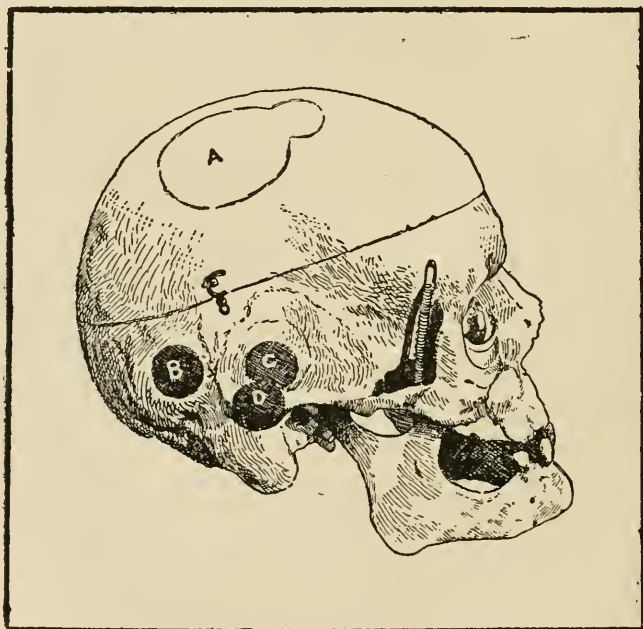
It is, I think, in the present state of brain surgery, of importance to place on record all cases tending to throw light on cerebral localisation of disease and the operative treatment had recourse to. I beg therefore to bring forward two additional cases—one of Jacksonian epilepsy, the other of large abscess in the temporo-sphenoidal lobe. For the notes of the former I am indebted to Mr. Dixon, and for the latter to Dr. Kiddle:—

CASE I.—A. C., aged thirty, a fitter, December 24, 1890, fell on his head a distance of 14 feet, alighting on some stone flagging. He was admitted to hospital with a scalp wound about 4 inches long, over right occipital and posterior parietal regions. He was unconscious; no fracture could be detected. For a fortnight he remained dull and listless with paralysis of the sphincters, and subsequently became maniacal; he, however, apparently completely recovered, and was discharged on January 27, 1891. Nine months subsequently he was admitted again to hospital with twitchings of left hand and arm, and partial left facial paralysis, but left after five days in hospital.

On December 29th, 1891 (a year after the injury), he was re-admitted

<sup>a</sup> Read before the Section of Surgery in the Royal Academy of Medicine in Ireland, on Friday, May 12, 1893. For discussion on this paper, see page 527, Vol. XCV.

to hospital; he had a series of epileptic fits which had commenced that day. Immediately after his admission he had a fit in which the following phenomena were noticed:—The left hand and arm began to twitch, the arm becoming flexed to a right angle at the elbow, the twitching then spread to the face, both legs, and right arm; all the muscles of the left side contracted more violently than those of the right, the face muscles very much so, and the left side came to rest first as the fit passed off; the eyes were turned up and to the left, the right pupil was somewhat dilated; head was thrown back and turned to the left, the muscles of the neck were very rigid. The clonic spasms lasted about one minute, and as they passed off the patient immediately recovered consciousness and sweated profusely, with conjugate deviation of the eyes to the right; there remained loss of power and sensation very marked in the left arm, and to a less degree in the face and leg; he was unable to move his eyes



*Figure illustrating Dr. Ball's Paper, drawn to scale.*

- A—Position in which trephine was applied in Case I.
  - B—Situation recommended by Mr. Barker for trephining in case of temporo-sphenoidal abscess.
  - C—Position selected in Case II.
  - D—Situation recommended by Mr. Wheeler.
- The small dark circle below D marks the place recommended by Prof. Birmingham for opening the mastoid antrum.



to the left. During the first 48 hours in hospital he had 46 fits, all of which commenced in the left arm and ran a course similar to the one described.

A more typical picture of Jacksonian epilepsy due to cortical lesion it is hard to imagine, and as the spasms invariably commenced in the left hand and arm, it was determined to explore the right central motor area, notwithstanding the fact that the scalp wound was considerably behind and below this region. As it was not clear which of the arm centres was most involved, a two-inch trephine was applied to the middle of the Rolandic area, and the dura mater divided crucially in the opening thus made (A in figure). The brain was now carefully explored. At the upper and anterior portion of the circumference of the opening the dura was tightly adherent to the bone and subjacent brain, and in order to expose this thoroughly it was necessary to apply a three-quarter inch trephine. I found there for an area of about the size of a sixpence the grey substance of brain appeared altered into soft connective tissue, through which the subjacent white substance could be distinctly seen. The adhesions of the dura at this point were carefully separated, the flaps of membranes replaced and sutured with cat-gut, and the scalp replaced and sutured. The following day, January 2nd, the left arm was absolutely paralysed; he had also facial paralysis, slight strabismus, and dilatation of right pupil.

The recovery of motion in the arm was most interesting. On the third day he was able to move the shoulder muscles slightly; on the fifth he was able to move the arm at the elbow, but could not stir the fingers; by the 29th day he was able to flex the fingers fairly well, but could not stretch out the arm from the body; it was not for nearly a month subsequently that he was able to reach out his arm so as to pick up any object, and fully extend his fingers. The facial paralysis subsided a few days after operation. He convalesced well, the only drawback being that a buried catgut suture caused a few drops of suppuration, and was discharged after the wound had healed a month after operation. While this was forming he was a little dull and heavy, but completely recovered after its evacuation. He has had no fit since the operation, but on the 8th March, 9 weeks after operation, the muscles of the left arm became rigid for a few minutes, followed by rigidity of the legs and right arm. There has been no recurrence of this symptom. He was discharged on the 5th of May, and was able to resume work as a fitter at the D. W. & W. Railway.

The lesion here was situated in the front of the ascending frontal convolution, and encroached on the posterior part of the superior frontal convolution to the centre, described by Ferrier as the pointing centre (No. 5), and the slow recovery of the power of extension of the arm, compared with the other motions exhibited, is a striking instance of the

accuracy with which the function has been localised in this region of the brain.

CASE II.—B. R., female, aged seventeen years, admitted to Sir Patrick Dun's Hospital, August 9th, 1891. Six months previously she had received a blow on the right ear, followed by purulent discharge from the meatus, which has since continued.

On admission she lay in a listless, semi-comatose condition, but could be roused to take food and answer questions; she was very pallid; complained of great pain in her head, increased by percussion, also pain in back of neck, which was rigid, the head being retracted. There was slight internal strabismus stated to have been of long standing, pupils were regular and reacted to light, temp.  $101^{\circ}$ , pulse 92, slight purulent discharge from right ear, no œdema or marked tenderness over mastoid bone on that side.

She remained in the medical wards from August 9th to October 27th, during which time the following more important features of the case may be noted:—At times she was well enough to get up and go about, at others she lay in a semi-comatose condition, with relaxation of the sphincters, while again she had constipation and retention of urine. She vomited frequently; on two occasions she had a kind of fit, and became quite unconscious, the eyes staring, muscles rigid, followed by some irregular movements of right arm and leg—this condition lasted only a few minutes. On October 7th she was observed to have double optic neuritis—a condition which steadily increased, while the right pupil became markedly dilated. On October 26th she had a rigor, followed by a temperature of  $101^{\circ}$ . She was cyanosed, and complained of extreme pain in the head. It was consequently decided to trephine her at once, the diagnosis being made of abscess in the temporo-sphenoidal lobe, based mainly on the following grounds:—1st, long continued ear discharge; 2nd, gradually increasing stupor; 3rd, vomiting; 4th, double optic neuritis; 5th, dilatation of right pupil; 6th, rigor, fever, and great intra-cranial pain. The sense of smell was not tested.

I selected for the application of the trephine the place recommended by Mr. Hulke—directly above the external auditory meatus, and, profiting by Prof. Birmingham's valuable measurements on the mastoid region of the skull, took care that the lower portion of the trephine circumference was half an inch above the roof of the external auditory meatus (C in figure). Upon removing the circle of bone the large posterior branch of the mid-meningeal artery was exposed crossing the centre of the opening; this was caught between two catch forceps, and the dura-mater divided across the whole circle exposed. The brain, much engorged with blood, bulged into the wound; the under border of the temporo-sphenoidal lobe being exposed, it was easy with a flat spatula to raise the brain from the

petrous bone, absence of adhesions demonstrating that there was no direct continuity between the ear disease and the brain. A sterilised exploring needle was now thrust into the brain. At a distance of about a quarter of an inch an abscess cavity was opened, and the opening subsequently enlarged by separating the blades of a sinus forceps; a considerable quantity of pus, at least 1 fl. oz., escaped, and a drainage tube passed into the cavity, which was quite two inches across. The subsequent progress of the case was most satisfactory. On the 8th day, the discharge being only serous, the drainage tube was removed, and the sinus allowed to heal. Three weeks subsequently she became dull with increase of temperature and pain; the scar becoming prominent, the cicatrix was incised, and exit given to a small accumulation of pus. After this she gradually improved, became bright and cheerful, the optic neuritis disappeared, and she was discharged quite well, Feb. 8, 1892. Since that date she continued well; she has grown quite robust; a slight otorrhœa continuing for about six months after the operation, but is now completely stopped.

The best position for applying the trephine in cases of cerebral complications following otorrhœa, although much discussed, can scarcely be said to be as yet definitely settled. To this desirable end the papers of Prof. Birmingham on the mastoid region of the skull form a most important contribution. In them are to be found what the surgeon really wants—the limits of variability of important structures, and not the average position. From these it will be seen that the lateral sinus is subject to great variability, and that if the trephine is applied in the position selected by Mr. Wheeler (D in figure)—*i.e.*, the circumference of the trephine on a level with upper border at the external auditory meatus, and in front of a vertical line passing through the tip of the mastoid process, the lateral sinus will be exposed in a considerable proportion of cases. In addition to risk of hæmorrhage, the field of operation is much limited by this procedure. Again, on mechanical grounds, as Prof. Birmingham has shown, this operation is objectionable; while one portion of the trephine circumference is cutting the thin squamous portion of the temporal bone, the lower portion is cutting deeply into the petrous bone. Undoubtedly, with care the remaining piece of bone can be broken through to remove the crown, but it is manifestly advantageous to select, if possible, a region for trephining where the skull is of more uniform thickness. There is, however, I think, a much graver objection to the adoption of Mr. Wheeler's site than either of the anatomical points above alluded to—that is, that where otorrhœa has existed for some time

the air cells of the mastoid and so-called mastoid antrum are in a highly septic condition. If now one portion of the trephine crown is cutting through this highly septic focus, while the other is opening up the cranial cavity, it is impossible to conceive a more probable way of producing intra-cranial sepsis. With regard to the position selected by Mr. Barker (B in figure), Reid's base line must first be marked out—*i.e.*, a line joining the lower margin of the orbit with the middle of external auditory meatus, and produced backwards; the point at which the pin of the trephine must be applied is one and a half inches behind the centre of the external auditory meatus, and one and a half inches above this line. As Prof. Birmingham has pointed out, a three-quarter inch trephine applied here will sometimes expose the lateral sinus, and he suggests that to avoid this important structure the point selected should be two inches above Reid's line. In my opinion, Barker's point is too far removed from the focus of disease, while the additional half inch necessary to certainly avoid the sinus removes the site of operation still further from the disease. I was present at an operation in which a three-quarter inch trephine, applied at Mr. Barker's point, exposed the lateral sinus, and failed in reaching an abscess which would readily have been dealt with had the opening been made immediately above the meatus. It appears to me that in the majority of cases of otorrhœa requiring surgical aid it will be possible so far to diagnosticate the state that one of four operations should be selected:—1. When disease is confined to the mastoid bone the antrum should be opened on the lines laid down by Professor Birmingham (small denticircle below D in figure), and the cranial cavity not encroached upon at all. 2. Where abscess of the temporo-sphenoidal lobe is indicated, trephine immediately above the external auditory meatus, so that the lowest point of the trephine circumference is half an inch above the upper margin of the external auditory meatus. 3. Where the symptoms point to abscess of the cerebellum, as Professor Birmingham has pointed out, a three-quarter inch trephine applied one inch below Reid's base line, and two inches behind the centre of the meatus, will expose the cerebellum below the lateral sinus. 4. Where thrombosis of the lateral sinus is diagnosticated, cutting across the internal jugular vein and scraping out the septic clots, as recommended by Mr. Ballance, appears to be the most scientific procedure.



ART. IV.—*Old-fashioned but Useful Skin Remedies.* By HENRY S. PURDON, M.D., Physician, Belfast Skin Hospital.

I WISH in these brief notes to call attention to some old and neglected remedies for the local treatment of various diseases of the skin. In the present day, in our longing after some new remedy, we are apt to forget those applications that have been tried and stood the test of years. The first one on my list is "Friar's Balsam," or the compound tincture of benzoin. The late Dr. Neligan, of Dublin—a no mean authority on diseases of the skin—in his work on "Medicines: their Use and Administration," 5th edition, 1858, dismisses Friar's Balsam with the following words:—"This tincture was formerly much employed as an application to wounds and contusions under the name of Friar's Balsam." However, I have seen wounds and ulcerations heal under its use, when carbolic acid or the more fashionable iodoform failed. The late Dr. Gordon, Professor of Surgery, Queen's College, Belfast—a practical and clever surgeon—used gallons of compound tincture of benzoin in his hospital practice, not only after operations but using it as a lotion, and also in various other surgical complaints as an injection—for instance, in the case of a sinus, &c. Painting fissures of the lips and tongue after first drying saliva from the part with Friar's Balsam, is a far better application than the glyceroles of either borax or tannin. In my own practice one drachm, or even two, of Friar's Balsam to an ounce, say, of zinc ointment is nearly a "specific" for indolent or sluggish ulcers, no matter where situated.

The next old-fashioned remedy to be noticed is the well-known "black wash," still largely used as a dressing to venereal sores. However, there is a non-specific affection of the skin which, when occurring on the lower extremities, is about as troublesome and tedious a complaint as any one can possibly have—I refer to red-eczema, *eczema rubrum*, and which is associated with intense itching, burning, weeping of serum, and more or less swelling of affected part. It is to Dr. Spender, of Bath, that the credit of suggesting "black wash" as an application in this disease is to be given. I use it frequently in the way that he has advised, I may say, without failure. He says (*Journal of Cutaneous Medicine*, Vol. IV.):—"Take some common black wash, mix with it a tenth or twelfth part of glycerine by measure, and let it be well shaken. A small quantity of this mixture being poured into a wide shallow

vessel, as a saucer, strips of linen are soaked in it, and after being lightly squeezed, are placed evenly and smoothly round the affected limb, a portion of the black oxide of mercury adhering to the linen. A bandage secures the dressing in its place, and the work is done. The dressing should be renewed night and morning; an impervious covering should on no account be put over it, as the pent-up secretion would decompose and possibly inoculate a fresh area of skin. The dry linen strips can always be easily removed by being first well saturated with warm water."

Acne, the sebaceous form especially, when occurring on the face, is tedious, troublesome, as well as disfiguring. The usual treatment with sulphur applications is not always successful, even if we combine a few grains, say 10, of the green iodide of mercury to the ounce of ointment. I have recently adopted, and with good results, rubbing the affected part at night with the (now discarded) "oil of amber," washing it off next morning with hot water and soap. Oil of amber has a pleasant odour, is much cleaner than an ointment, penetrates into the follicles, and is especially, if long continued, an active rubefacient, producing more or less irritation and slight redness of the skin. I consider this oil worthy of being placed in the dermatologist's list of remedies.

"Balsam of Peru," now chiefly used as an ingredient in pomades to prevent baldness, is not only an excellent stimulant when added to ointment for the healing of ulcers, but also in various ways for relief of pruritus vulvæ. However, as a method for the cure of scabies, it is to be well rubbed over all the body except head and face, but especially between the fingers, toes, wrists, and abdomen; it compares favourably with sulphur ointment, and does not produce any secondary eczema. The expense of the remedy is, however, against its general use. I need hardly mention camphor as an anti-pruritic remedy, or "Liquor Plumbi," so well known and still in use, but will conclude by observing that, as a basis for ointment in place of lard, the old-fashioned "Ceratum Galeni," or cold cream, is much preferable. I have endeavoured to improve on it, however, by making my basis consist of lanoline, best almond oil, spermaceti, and enough white wax to give consistence. In this I believe we have as nearly as possible a perfect material for ointments—a view borne out by the testimony of the leading dermatologist of Sydney, Dr. W. M'Murray, who, as a pupil at Vienna, Paris, Hamburg, and Berlin, may be allowed to speak with some

authority. He told me a short time since that he had adopted above suggestion and with good results. The late Sir Erasmus Wilson pointed out years ago "the prevention of rancidity of fats and oils used in the preparation of ointments is of immeasurable importance in local cutaneous medicine. It is to be remembered that a cutaneous eruption, by virtue of the inflammatory congestion which exists, is an actively oxidising surface, and ointments containing lard, perfectly fresh when applied, are apt by absorption of oxygen, to pass quickly into a state of rancidity."

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ART. V.—*Case of Enteric Fever, complicated by Purpura, and in which a Malarial Type of Temperature Curve occurred.*<sup>a</sup> By RICHARD A. HAYES, M.D., *Dubl. Univ.*; Physician to Dr. Steevens' Hospital.

THE occurrence of purpura, while not uncommon in many other fevers, is, so far as the writer is aware, so very rarely observed as complicating enteric fever that the following case seems worthy of record:—

CASE.—W. R., aged twenty, was admitted to the male private ward in Dr. Steevens' Hospital on the 12th March, 1893, under the care of the writer. It was stated that the patient had been ailing for more than ten days previously, but he was not able to give much information about himself, being on admission very seriously ill.

His temperature was found to be 103°, rising the following evening to 105°. He was very prostrate, with soft, weak pulse. Spleen a good deal enlarged; a few rose spots on abdomen, which was tender over right iliac fossa. He had when first seen, and for some days afterwards, profuse diarrhœa. Four days after admission he had two sharp hæmorrhages.

About a week after admission the fever showed signs of commencing lysis, temperature falling and other symptoms improving; but in three days a relapse occurred, the temperature again rising to 102°, with fresh rose spots, &c.

The relapse had continued without any feature worthy of mention for 25 days, the diarrhœa giving place to constipation, when on the 25th day there was a return of diarrhœa, followed next day by two considerable hæmorrhages. Matters then went on almost as before for a week, when, on the 32nd day of the relapse, the patient's gums began to bleed

<sup>a</sup> Read in the Section of Medicine of the Royal Academy of Medicine in Ireland, on Friday, May 19, 1893.

quite freely, and blood appeared in the urine. At the same time blood was also found in the motions, but it appeared to occur in quite a different manner from the hæmorrhages usually observed. It seemed to be rather the result of a continued oozing than bleeding from a vessel opened by ulceration. Several considerable bleedings also occurred from the nose. The Sister in charge also showed me a large patch of subcutaneous hæmorrhage over the right scapula, and many purpuric spots on the limbs.

These symptoms lasted for nearly a week, gradually subsiding, apparently being influenced by a change in the treatment, which will shortly be detailed. The further progress of the case, ending in a very tardy convalescence, did not present any features of interest.

It seemed quite impossible to account in any satisfactory way for the occurrence of the above curious condition, coming on as it did so late in the course of the disease. The patient was a healthy individual, possessing very considerable stamina, as shown by his steady recovery from an unusually severe illness, and there was, so far as I could ascertain, no history of hæmophilia.

The treatment pursued in relation to this condition, which, owing to the profuseness of the bleeding from so many parts simultaneously, seriously threatened the patient's life, may be shortly mentioned. Previously and up to the occurrence of the purpuric troubles the patient had been getting m 15 doses of spt. terebinth as punch with brandy, as a general stimulant and disinfectant to the intestinal tract, but on the appearance of the hæmaturia this drug was stopped, as being a possible cause of the hæmorrhage from the urinary organs. After the purpura had continued for some days, and appeared to be quite uninfluenced by several hæmostatic drugs, the turpentine was resumed, and almost immediately the hæmorrhages began to decline, and finally ceased.

This case presented during a part of its course another feature of interest, and, so far as the writer is aware, a rare one in this country—viz., a temperature curve exhibiting well-marked variations of a malarial type in addition to the usual diurnal ones of enteric fever, which occurred as follows:—Each third day the temperature suddenly rose 3° to 4°, and as suddenly sank to a level about that at which it had previously stood, and remained there with the usual daily variations until the third day following, when the same large rise and fall took place. These extreme elevations of temperature were accompanied by a condition of rigor, very severe, and lasting sometimes for a period of half an hour, the fall



of temperature being accompanied by profuse sweating and collapse. This state of things lasted for 14 days, the before-mentioned purpuric symptoms showing themselves at about the middle of this period. The patient had never suffered from ague.

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ART. VI.—*The Applicability of Hygiene to the Conditions of Modern Warfare.*\* By J. LANE NOTTER, M.A., M.D., M.Ch. University of Dublin; Professor of Military Hygiene at the Army Medical School, Netley; Brigade Surgeon, Lieut.-Col., Army Medical Staff; Fellow and Member of Council, Sanitary Institute; Examiner in Hygiene, Science and Art Department, London; Examiner in Public Health, University of Cambridge, &c., &c.

I OFFER no apology for bringing forward this subject, for since 1860 England has practically been annually engaged in some form of military expedition or other in various parts of the globe, and has in consequence gained an experience in practical sanitation in war unequalled by any other country. I venture, as the representative of that army, to bring forward some considerations as to how far, consistent with the exigencies of modern methods and conditions of warfare, the general principles of hygiene can be applied with a view to mitigating, if not obviating, much of the disease and suffering incidental to military operations; at the same time not losing sight of the fact that, notwithstanding the greatest efforts, the hygienic ideals of peace time are impossible of attainment during a period of war.

Inasmuch, the *raison d'être* of the existence of a standing army at all is essentially the drilling, training, and preparation of the individual soldier for purposes of war, we find that the very first care is the proper selection of troops, and in making this selection we find these factors prominently asserting themselves—they are size, weight, and age of the men. The consideration of these factors is essentially one for peace time, and a nation having once committed herself to war has no choice left in dealing with these matters, but every available man must be utilised for military service, regardless of temperament, age, or any other consideration.

\* Read at World's Auxiliary Congress, Chicago, June 12 to 18, 1893.

While the hygienic bearings of military life are fairly simple in peace time, the moment war breaks out we find the conditions alter materially—in fact, so much so that all hard-and-fast rules, or preconceived ideas as to the attainment of a perfectly hygienic mode of life by an army in the field is practically impossible. To state this briefly, the only hygienic methods possible are those which the circumstances of time and place admit of. We must use what we can get, taking care, however, to arrange the work and condition of labour which the individual has to perform as much as possible in accordance with our hygienic ideal. Being in a state of war, this will naturally be difficult to attain in its entirety.

*Food and Drink.*—The feeding of large masses of men in the field will need to be conducted on the same dietetic principles as the feeding of similar multitudes in peace time. The main points on which this will differ will be absence of regularity and difficulty of supply—the former must necessarily be subordinate to military exigencies, but the importance of regularity in feeding should never be lost sight of. As to the nature of the supply, in the present day of excellent methods of preservation of food stuffs, little difficulty is likely to arise, provided the transport arrangements are adequate. The maintenance of a regimental supply unit would seem to be preferable to the larger one by brigades. In fact, to adequately carry out a proper supply the regimental unit should be rigidly adhered to. It should also be clearly understood that the emergency ration is purely a supplementary one, and in no case ought to be reckoned as a part of the ordinary field ration.

As concerns the supply of drink to an army in the field, water must necessarily form the staple element; with an advancing column systematic filtration is impossible; reliance will have to be placed on simply boiling the water before filling the water-bottles; when this cannot be done, the only safeguard will be that of selecting the purest supply possible. Men should be taught the danger likely to follow on drinking water the source of which is unknown, unless this has been previously boiled.

*Filters.*—If a filter is to be employed at all, some form of the Chamberland-Pasteur seems to be the best; but as yet no form at once portable and easily used has come under my notice. All medical officers are unanimous in condemning the issue of alcohol as a ration in the field. The only form in which it is

admissible is in the form of light red wines, which are best taken when freely diluted with water. The consensus of opinion on this point is so unanimous that further reference need not be made here.

*Preventable Diseases.*—Within the scope of this paper it is impossible to deal with the many diseases incidental to warfare; briefly stated, those which most frequently render men non-effective are diarrhoea, malaria, heatstroke, and footsoreness—these are all more or less preventable.

*Diarrhoea.*—In the field, diarrhoea is a disease which is early met with, consequent on a change of food and chill. It has occurred in every expedition, and is frequently followed by enteric fever, the passage of the one disease into the more severe being rapid, and increasing as the age of the men composing the force diminishes, the younger men suffering most. In camps and on the march the latrines should be kept in a perfectly sanitary state, and as disinfectants are not always available, they should be dug deep and narrow, and covered in with six inches of clean earth daily, the same trench not being used for many days in succession. Men suffering from diarrhoea, which does not yield in a day or two to simple remedies, should be passed on to the field hospitals for further treatment.

*Malaria.*—As regards malaria, little can be done on service to make a temporary site in a malarious country healthy. Any form of subsoil drainage is impossible, and the rule should be not to occupy such positions longer than actual necessity obliges. With the rapidity of movement incidental to modern methods of warfare, men will seldom remain sufficiently long in one place to undertake work of any permanent character. The securing of an ample supply of food, the avoidance of chill, damp clothes, night air, and with the issue of an early morning ration of coffee or cocoa, with biscuit, is about all we can do. For operations in malarious countries the selection of troops is one of importance, for there is no “seasoning” process against paludal fevers; on the contrary, one attack, in place of conferring immunity, predisposes to another. The prophylactic use of quinine has not been followed with any success under the circumstances mentioned.

*Heatstroke.*—Heatstroke is a thoroughly preventable disease; it occurs in two forms—by direct solar heat, and by the effect of a heated atmosphere independent of the sun’s rays. Against

the result of direct solar heat, a proper protection for the head and body is necessary. Marches should not be undertaken in the tropics when the sun's rays are vertically over the head; the morning or evening is the time indicated. If military necessity demands it, it is better that men should march at night than that they should be exposed to the risks incidental to a mid-day march; but the fatigue which this occasions should not be lost sight of, nor the inconvenience of reaching a camping ground or bivouac in the night and darkness.

On the march the most open order must be maintained. If the ranks close up, the temperature in the ranks rises, and the air around the men becomes loaded with organic impurity.

The men should march at ease, with as great freedom of movement as possible; their coats, &c., open, and the weights they have to carry, as far as possible, reduced to a minimum. This lessens the mechanical work which they have to do, and thus fatigue is lessened. Halts should be frequent and sufficient, and every advantage taken of any shade.

Some of the symptoms of heatstroke may also be caused by the reflected rays of the sun through the orbit when the optic nerve is exposed to direct rays of light.

In the tropics neutral tinted glasses are frequently worn, and the sense of relief experienced by the wearers tell the advantage their use affords. They were found effective in the form of goggles in the Egyptian Campaign of 1882, as protection against glare, heat, and sand, and thus in warding off ophthalmia.

If racial prejudices could be overcome, there is no doubt that the headdress worn by Asiatics would be of immense advantage to Europeans when fighting in the tropics, as it affords a coolness and protection which the present helmet fails to secure.

To guard against the effect of indirect heat, the most open order in camp must be maintained, and when tents are used, only those with double flies should be sanctioned for the tropics. The lining should be of a pale blue colour, as used in the Sepoys' tents in India. Men should not occupy the tents at night unless the country is a malarious one, and even then a very slight covering will afford protection against malaria. Overcrowding is one of the most constant and most dangerous factors in the production of heatstroke.

On the march the early symptoms of heatstroke should be watched for and timely aid afforded. The staggering gait, the



flushed countenance, abnormally frequent micturition, and the absence of perspiration, should at once demand the attention of the surgeon and timely aid afforded.

*Footsoreness.*—Footsoreness is one of the most troublesome ailments the surgeon is called upon to treat on the line of march. The initial hardness of the leather used in military boots is the cause of much suffering. Once the boot is moulded to the shape of the foot it does not press unduly, and, as regards wear, excels any other, but this is a comparatively slow process. Greater pliability of the material should be aimed at, as well as greater care in fitting the foot. The heels should be low and flat, as these have an important influence on the rhythm, which in its turn influences the rate of speed and lessens fatigue.

*Camps.*—In war any theoretical ideas of the site for a camp must be abandoned and advantage taken of any position which presents itself. So, too, as regards tents. The advancing army in any future European war must be prepared to bivouac where military exigencies require it to halt, and, so far as we at present foresee, the transport available will not be more than equal to providing provisions and ammunition for those in front, and removing to the lines of communication or to the base the sick and wounded of the force. On this account some sort of light shelter tent which can be readily adjusted seems indispensable—one to be carried between every two men, the parts being interchangeable. It might also be made so as to afford protection against rain, if worn as in the German Army in the form of a “poncho.”

As regards sanitation, it is useless to attempt much; there are, however, two points which should claim the personal attention of the surgeon, and these are:—

1. The nature of the shelter provided.
2. The disposal of excreta.

So long as men are on the march, and are not provided with tents, density of population on a given area matters little, but when, however, tents are occupied, this becomes an important factor. Whether in tents or in civil buildings, any overcrowding is soon followed by disease, and the best efforts of the military surgeon should be directed to mitigating this error.

The best kind of tent is still a desideratum, but the chief points to be aimed at are to secure adequate protection from the weather, a free movement and interchange of air, a double

fly for tents when campaigning in the tropics, that the tent should be as light as possible, and that it should not be of too conspicuous a colour.

In malarious countries the soil under the tent should be beaten down as far as possible, so as to prevent exhalations from the ground and to keep the tent floor impermeable. Temporary drainage should also be secured.

*Camp Latrines.*—Camp latrines should be placed to leeward of the tents and at least fifty to one hundred yards distant; the trenches should be deep rather than wide, so that the surface exposed to the sun and air may be as small as possible; if the camp is for more or less permanent occupation the trenches may be four or five feet deep, small quantities of soil being added daily, and the trench filled in when within two feet of the surface. For merely temporary use all trenches should be one foot wide, one foot deep, with a space of one foot between each line, the trench to be filled in when six inches from the surface.

Trenches are suitable only for men in perfect health, for those suffering from slight diarrhoea or dysentery it is no easy matter for men to get up, say, six or eight times in the night and to grope their way to one of these trenches, or to avoid falling into it if he succeed in his expedition. A man suddenly attacked with illness could not do it; a lazy man would not do it if he could find a handier place near by; both might be excused for refusing to go, say, one hundred yards away, under a burning sun, during tropical rain, or with a thermometer at or below zero Fah.

A latrine barrow would obviate most of the inconvenience. The body made of a sort of box, suspended on an iron bar springing from the wheel axle. Such a movable latrine could be easily placed in the most convenient situation and emptied as often as necessary; it could be wheeled off to a safe distance and brought back after cleaning and disinfection. No one knows, except they have experience of it, what labour and anxiety this question of latrines gives. Fevers have been the scourge of armies, and of all armies that become stationary for a short time. Why? Because of this great latrine difficulty. To take over houses or civil buildings and to use the common privies, or w.c.'s, such as exist in Continental towns, would be simply to invite the spread of enteric fever, cholera, &c., and to

avoid the risk which is always present, I most strongly advocate some system such as I have very briefly sketched out here.

*First Aid.*—In war, with the modern arms of precision, and the vast size of Continental armies, it is impossible to have an adequate “first aid.” The medical services in all armies are undermanned, and even in peace time it is difficult to find surgeons for the work to be done. The cost of a medical service is so large in proportion to its strength, that it is hopeless to expect any increase to that strength. The problem then is, how can we best utilise what now exists for meeting the exigencies of war.

In the British army the Army Medical Staff is divided into two branches, Executive and Administrative. In the former, all wars have shown the officers to be fully competent for the discharge of their duties; the failure, if failure there has been, has happened in the administrative grade. In war it is not difficult to obtain a number of surgeons well up in their professional work; but what it is almost impossible to form at a short notice is, a body of officers, thoroughly trained in army medical organisation according to existing regulations; men of good administrative ability, having a full comprehension of the urgent necessities which spring from modern warfare, and with a knowledge how to apply the available medical assistance as effectively as practicable whenever and wherever it is most imperatively required.

To obtain this there should be a large extension of the system of personal responsibility, so that the mind may be trained on a larger basis, that medical officers in peace time should have more independence, and deal within their province with questions of greater magnitude. The defects in the past have been largely in the direction of a want of independence on the part of the medical department. They have always been fettered by being dependent upon other corps for material. No medical department can ever be thoroughly efficient which has not actual and absolute control over all elements essential to its successful working. Owing to the large numbers likely to be engaged in future wars, large numbers are likely to be placed *hors de combat* within a short time; the best system of first aid must necessarily be unable to deal adequately with such numbers. There is need for the public to recognise this fact, and so to avoid any outburst of hysterical clamour; if nations will make war, they must pay the penalty.

"It is applicable in such cases as varicose veins, or where for any cause gentle and equable pressure is indicated.

"One of its advantages over the old method of roller bandage is, that a nurse or unskilled helper can easily be instructed to apply it, and it is less likely to slip down than the roller bandage. It also allows of greater freedom of movement.

"The limb or chest is covered by Johnson & Johnson's Lintine cut to fit, and neatly adjusted to the part; then cheese cloth or bunting is applied, and with a large needle and coarse, strong thread (double) the bandage is drawn together snugly. Another seam may then be run up to add to its pressure. If special pressure is desired, as over an inflamed knee joint, short gores may be run alongside of the knee."

Dr. L. B. Couch suggests the following method of using Lintine in the place of adhesive plaster for covering and closing wounds: "Cut a piece of Lintine half inch wide, and a half inch longer than the wound. The wound is then dabbed with iodoform collodion, and the Lintine strip laid over it. This dries quickly and holds the edges of the wound in coaptation. The whole may then be covered by a coat of collodion and the result is a perfect and smooth antiseptic dressing. By this method one is able to discard pins and sutures in many cases. Lintine makes a smoother and firmer dressing than anything I have ever used."

Lintine makes an excellent material for covering patients' limbs, the bedding, tables, &c., during an operation.

A strip of Lintine two feet long, and eight inches wide, folded together, so as to form a pad about eight inches square, will be found very useful as a dressing after laparatomies. Fashioned in an oval shape and saturated or made antiseptic with a fifty per cent. solution of Boroglyceride, it will make an excellent obstetrical pad for the puerperal state. Medicated in the same manner, it is excellent for the treatment of bed sores, ulcerated surfaces, etc. Cut into long strips, and wound into a ring, and secured in shape by a string necessary for its removal, it makes an excellent pessary. It is useful as a reliable antiseptic napkin, during menstruation, and for patients suffering from diseases of the genital organs. It is especially convenient for diapers for infants.

As a tampon in applying a gynaecological wash and in many other ways the gynaecologist can bring it into convenient use. For Napkins for the sick in cases of tuberculosis, scarlatina, diphtheria, cancer, it is especially useful. Small squares can be used and immediately after burned. Lintine is useful for making a pencil or mop for throat, rectal or vaginal applications or reaching cavities for absorbing drainage or emptying drainage tubes.

The usefulness of Lintine is almost unlimited.

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## PART II.

### REVIEWS AND BIBLIOGRAPHICAL NOTICES.

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*Cholera Infantum.* By E. MEINERT, M.D., Dresden. Reprinted from the "Medical Annual," 1893. Pp. 18.

THIS able and instructive article is deserving of the closest and most attentive study at a time when Asiatic cholera is again threatening Europe, and when a premature summer of exceptional warmth and beauty has caused an outbreak of cholera infantum in our large towns six weeks before the usual time. We cannot do better than describe this fatal malady in Dr. Meinert's own words. He is describing an outbreak which occurred in the city of Dresden in 1886, when *within eleven weeks of warm weather 10 per cent of all children in Dresden under one year of age died* :—

"Children, generally healthy, suddenly became hot and restless, breathed irregularly, drank and perspired profusely, until they were attacked suddenly with vomiting or diarrhœa, or both, either together or one following the other. The diarrhœa discharge soon became watery, the skin, previously hot, cooled considerably, the voice became hoarse and afterwards whimpering, and often these symptoms were within a few hours followed by a considerable loss of flesh and weight. With or without convulsions children succumbed in a week on an average; many long before then, even on the first day. In 1886 also we found—and our similar investigations in 1887 confirmed it—that the greater part of the infants who died in the summer were the victims of a disease which showed so much resemblance to cholera as would make the name *cholera infantum* not altogether unsuitable."

In discussing the question of ætiology, Dr. Meinert points out that cholera infantum spreads within the walls of large towns in obedience to most unusual laws. It does not follow the waterways and thoroughfares; it does not regulate itself according to the height of the barometer or the depth of the subsoil water. It is unaffected by dampness or drought. Even inordinate density of population plays but a subordinate part in this disease. Dr. Meinert says:—

"In Dresden we came upon thinly-populated districts with a high, and densely-populated districts with a low, mortality. The different classes were nevertheless visited in a very different degree; 60·8 per cent. of the children who died in 1886 belonged to the working class; 23 per cent. to the middle class; and only  $\frac{1}{2}$  per cent. to the higher and educated classes; 15·7 per cent. were illegitimate.

"The epidemic broke out simultaneously in most distant parts of the town, and the several groups of cases could not be traced back to any common source of milk supply. The cow's milk was always given boiled. Nineteen children suckled at the breast and four hundred and sixty who were fed with cow's milk died of the malady. There was but one family in which two children (twins) died at the same time; in other families there was only one case. The number of illnesses and deaths, was not influenced in any way by the *direction*, but to a great extent by the *strength*, of the wind. High temperature with a strong wind was not accompanied with any danger, compared with a moderately high temperature and no wind. The most numerous and serious cases arose on hot days with a minimum amount of movement in the air.

"These facts seemed to indicate that the key to the greater or less safety of certain streets and houses from cholera infantum was perhaps to be found in the greater or less freedom of access for the ventilating power of the wind."

The author proceeds:—

"It is a fact useful as concerning the subject, and highly satisfactory to myself, that, quite independently of Dr. Ballard, I have come to the same conclusion as that important investigator with reference to the influence of the wind, and of restriction of, and impediments to, the free circulation of air (about and within dwellings) in causing cholera infantum. Our researches also show the reason why *density of population* has not so direct an influence upon diarrhoeal mortality as *density of buildings* (whether dwelling-houses or others) upon area."

Dr. Meinert, in a word, maintains that in the state of the dwelling-house we have a most important key to the right understanding of cholera infantum. In summer, as soon as the temperature of the outer atmosphere is balanced by the temperature of the air inside the dwelling, domestic ventilation is at once paralysed:—

"But if at the beginning of the hot season only an atmosphere can develop itself in the house, which becomes injurious to infants, why is it that cholera infantum prevails even during the three or four weeks after the fall of the high temperature. The closer stone dwellings stand together the longer do they retain the heat they have once acquired.

Since, moreover, the walls are built deep in the earth, and are, as it were, an appendix of the earth, and the temperature of the earth sinks more slowly than that of the air; at the return of cooler weather warmth is communicated to the houses from the earth. This explains the fact that the epidemic mortality, which first begins when the earth's temperature, measured to a depth of four feet, is 56° F. (according to Dr. Ballard) can prolong itself into the last quarter of the year."

As regards the differential diagnosis, Dr. Meinert shows that cholera infantum is distinguished from acute dyspeptic gastro-intestinal catarrh by its unquenchable thirst, by the suddenness of the collapse, by hollowness of the face (*facies cholericæ*) arising from the rapid loss of serum, and by the uselessness of opiates.

Healthy and strong children more than others fall victims to the epidemics, not the weakly and dyspeptic, as is commonly believed. The investigations of Dr. Ballard and of Dr. Meinert have independently established this fact. The preliminary results of Dr. Ballard's researches will be found in the supplement to the Seventeenth Annual Report of the Local Government Board for England (1887-1888).

A study of the pathological anatomy of cholera infantum leads Meinert to the conclusion that "the pernicious summer diarrhœa is never the product of an enteritis, but depends upon paralysis of the bowels. Where enteritis is really found it is always secondary, and a result of an abnormally inflammatory transudation in the mucus of the stomach."

As regards its pathogenesis, in all probability cholera infantum is an intoxication. The poison, or a combination of poisons, appears to work on the medulla oblongata, for there lies the centre for intestinal secretion, vomitings, convulsions, respiratory and vasomotor phenomena.

When one considers the relationship which Dr. Meinert has proved to exist between the condition of the dwelling and cholera infantum, the fact that only at the end of the last century did the epidemic character of the malady attract the attention of physicians is easy of explanation:—

"Its spread was bound to advance with the same rapid steps as the development of modern large towns, and especially as the consequent want of proper housing for the working classes. The natural strongholds against the disease are the physiological nurturing of infants, and sufficient self-regulating domestic ventilation in hot weather. Countries in which the greater proportion of infants are artificially reared, and in

which, on account of the prevalent cold weather, no attention is paid to the situation of houses—these must be the predisposed homes of cholera infantum in the exigency of a hot season coming upon them unexpectedly. This is why the complaints against the devastating force of cholera infantum arise from the most temperate zones. In these zones lie those lands where a short hot summer succeeds a long and cold winter, and in which large towns assist the epidemic by means of closely-built high houses, and numerous workingmen's families. For this reason the United States of North America is the classic land of cholera infantum. The difference of the temperature between January and July, is in Africa  $3\cdot4^{\circ}$  C., in South Australia  $4\cdot2^{\circ}$  C., in Australia  $13\cdot0^{\circ}$  C., in Asia and Europe  $26\cdot1^{\circ}$  C., and in North America  $28\cdot4^{\circ}$  C.

Dr. Meinert points out that in England results as unforeseen as they are extraordinary were arrived at concerning cholera infantum after the passing of the Public Health Acts. According to Sir Spencer Wells, Bart.,<sup>a</sup> people were astonished to find that the *infant mortality* in those large towns which had shown particular diligence in carrying out the Acts sunk to quite an unexpected degree:—

“In all countries of the temperate zone, infant mortality is measured by the intensity of the summer epidemic, and the number of deaths from the cholera infantum. The explanation of the astonishing figures is easy. By the destruction of whole districts a number of those houses were removed in which cholera infantum had till then found its home, and by the erection of well-ventilated new buildings, an equal number of dwellings were placed on the site of the old ones, in which cholera infantum could not take root. The main business of professed hygiene with reference to this devastating disease is contained in these facts.”

In the preventive treatment of this child-pestilence, everything will depend on enlarging the child's powers of resistance:—

“Parents will understand us best if we remind them of all they themselves are accustomed to do in order to make life bearable in their sultry dwellings. They dispose of all articles of clothing which are not absolutely necessary; they wash more often than usual; they change their underclothing more frequently; move their limbs about; change their position, sitting or standing; lie in bed half exposed; throw themselves from one side to the other, even in sleep; and lastly, eat less and drink more. It will be our duty to tell people how prudent this instructive behaviour of their's is; that the infant, if he could make himself understand, would express the wish to be able to be similarly treated; and

<sup>a</sup> Brit. Med. Journal, Oct. 4, 1890.



what in this respect are the duties required of the parents to the child during the hot weather."

In the matter of curative treatment, we must remember that enormous losses of water—in sunstroke more through perspiration, in cholera infantum more through diarrhœa—empty the vessels, till at length, when the disproportion between the room in the vessel and the contents has reached a certain degree, the heart ceases to beat. From this it is seen that *indicatio vitalis* for treatment is to replace the water which has been drawn from the blood and tissues:—

"Water given in quantities in cholera infantum is equally effective against both diarrhœa and vomiting. The sooner you begin to give water, and the more violent the discharges are, the more prompt will be the result obtained. In the first stages of the malady the effect is obtained almost immediately. Against the ordinary dyspeptic diarrhœa this procedure does not have much effect, for the very reason that thirst, which makes it possible to manage it, is entirely absent. In *cholera nostras* of grown up people, on the other hand, it proves as effective as in cholera infantum. Dr. Fiedler, in Valparaiso, my former assistant, has observed many proofs of it. In both diseases water given in a sufficient quantity is the *analepticum par excellence*; so that one is astonished to find that patients, who seem to be on the verge of death, are in their full strength after one or two days. They also wholly escape the secondary enteritis, if they are treated in good time (*i.e.*, when in the state of paralytic catarrh) which is unfortunately the case. As for the rest, these little patients must be treated in exactly the same manner as soldiers suffering from sunstroke. In the first place they must have a cool douche or bath, be carefully taken into the fresh air, and only lightly dressed. In the stadium algidum, a hot bath should be resorted to."

Dr. Meinert ends his excellent contribution to the *Medical Annual* with a particularly apt remark. "Neither," says he, "is it enough that doctors should know how to struggle with cholera infantum. In Dresden, about a half of the cases of the disease died without ever seeing a physician; and when a doctor did visit a child he usually found him dying. Let medical men no longer be of divided opinions as to what is the best treatment for cholera infantum, then *their next care will be to show mothers how they can help themselves.*"

In this connection, we may point out what an influence for good in controlling the prevalence of and mortality from cholera infantum

the Queen's Jubilee Nurses, who are doing such a noble work in the artisans' dwellings and tenement houses of our large towns, could exercise by conveying to the mothers in their districts the information as to treatment which Dr. Meinert gives in his article.

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*Modern Homeopathy: Its Absurdities and Inconsistencies.* By WILLIAM W. BROWNING, A.B., LL.B., M.D.; Lecturer upon and Demonstrator of Anatomy, Long Island College Hospital, &c., &c. Philadelphia. 1893. Pp 32.

THIS pamphlet won the prize of one hundred dollars offered by Dr. G. M. Gould, of Philadelphia. It is complete for its purpose, and might have borne for motto, "Thrice he slew the slain;" but it will never reach the country clergyman nor the Lady Bountiful who cures all diseases with sugary nothings; and however conclusive may be, to ordinary minds, such a demonstration of the "absurdities and inconsistencies" of the modern Hahnemannian cult, we fear that the mind of the amateur homœopathist is impervious to argument.

Is it worth while at the present day to go back to *The Organon of the Healing Art*, and to illustrate its crudity and irrationality? Is it fair to laugh at the modern homœopathic practitioner because Hahnemann's *opus magnum* is so ridiculous as to make us doubt of the author's sanity? These are questions less simple than they seem. On the one hand, we have the International Hahnemann Association declaring, in 1880, that the *Organon* is "the only reliable guide in therapeutics;" that, consequently, homœopathy "consists in the law of similars, the totality of the symptoms, the single remedy, the minimum dose of the dynamitized drug—and these not singly but collectively"—and resolving, "That, as some self-styled homœopathists have taken occasion to traduce Hahnemann as a fanatic, as dishonest and visionary, and his teachings as not being the standards of homœopathy to-day, that we regard all such as recreant to the best interests of homœopathy." So far as this section of the school is concerned, we are justified in throwing fragments of the *Organon* at the heads of its practitioners. On the other hand, there is abundant evidence, in this pamphlet and elsewhere, that a large—probably the larger—section of modern homœopathists practise very much as we do ourselves, many of them

openly repudiating the law of similars as an exclusive guide to treatment, and, either openly or covertly, abandoning infinitesimal dosage. With Dr. Browning's help we shall deal briefly with both divisions of the homœopathic sect. So far as Hahnemann's own teaching is concerned, we shall confine ourselves to homœopathy proper. It is well known that in essays published subsequently to the *Organon* he propounded views of which it is difficult to speak seriously. Let the one notorious example suffice. He taught that the *acarus scabiei* is "the only fundamental cause and source of pains of every variety." In the *Organon* the leading principles laid down are:—That *similia similibus curantur*; that "all that a physician may regard as curable in diseases consists entirely in the complaints of the patient and the morbid changes in his health perceptible to the senses;" that every drug before taking a place in the pharmacopœia should be administered to healthy persons, and its effects carefully observed and recorded; that one drug only should be administered, and that no local or external applications should be employed. Strange to say, the infinitesimal dosage, which is in most minds an essential feature in homœopathy—so that "homœopathic" has come to mean "infinitesimal" in common speech—is an after-thought of Hahnemann's. *Similia similibus curantur*, adopted from Paracelsus, was at first his sole therapeutic principle. Drugs are to be administered "in moderate quantities;" but, "to disclose the wealth of their latent powers, are to be taken in highly attenuated state." Hence, it is laid down that smelling homœopathic remedies, or "inhaling them in the form of vapour emanating continually from a dry pellet impregnated with a highly rarified medicinal solution, and contained in a small vial," is of great efficacy. He tells us of a preparation of gold, "so developed that a quadrillionth part of a grain may be put in a vial, and, if a melancholy person, whose disgust of life has brought him to the verge of suicide, will breathe it but a few seconds, in one hour he will be relieved from the wicked demon, and restored to a relish of life." An English disciple found, "after many years of anxious experimentation," that homœopathic medicines contained in closed vials, held in the hand, are specially efficacious.

The doctrine of similars is not intrinsically absurd. It was considered applicable to some diseases by Hippocrates, and Paracelsus adopted it. It is almost inconceivable, however, that any rational being can knowingly accept the doctrine of infinitesimal therapeutics, the other hinge on which homœopathy turns. As a

matter of fact, few of the regular practitioners do; and even the benevolent busybodies who cure every disease, from cancer to itch, with pellets of milk-sugar, can scarcely be aware of the nothingness of their medication. The "first potency" of a drug soluble in alcohol contains one drop of a strong solution in a hundred, the second one drop in a hundred of the first; so that the thirtieth—which Hahnemann laid down as the best for ordinary use—contains a decillionth of the mother tincture, a quantity represented by a fraction of which the numerator is 1 and the denominator 1 followed by 60 cyphers. If the drug is a solid, insoluble in alcohol, it is triturated and mixed with milk-sugar. The third trituration becomes soluble in alcohol, on some occult principle unknown to chemists, and is treated as before. A bottle is two-thirds filled with globules of milk-sugar, "the 'potency' dropped into it, the bottle corked and shaken so that they are all equally moistened. It is then turned upside down and left standing for from nine to twelve hours. After this time the cork is loosened to allow the liquid in the neck of the bottle to escape. The globules are, in a few days, dry and ready." The *Organon* tells us that their virtue will remain unimpaired for twenty years, which we believe without difficulty. We have the authority of the *Encyclopædia of Materia Medica* for believing that *smelling* the thirtieth potency of aloes produces the following effects:—

"In the afternoon of the fourth day he works with a will without a mid-day nap. Toward the evening of the fifth day he is uncommonly aroused by inspiriting, joyful news. On the eighth day he has cold feet all night, sleeps little, though ordinarily he is sleepy in the evenings. This same day a pustule which had formed on the edge of his upper lip, left side, healed. On the ninth day he had extremely painful tearing stitches in the second joint of the left forefinger. On the tenth he has a longing for juicy food, fruit, but not for water. On the eleventh he has canine hunger, and after a meal becomes sleepy. In the afternoon of the twelfth day he is uncommonly thirsty, has a swashing and gurgling in the bowels, audible to him, and in the evening is inclined to work. On the thirteenth day he has a pale, sickly look. In the afternoon of the fourteenth, on walking in boots, he gets a pain in the right little toe, as if frozen. In the morning of the fifteenth he lies till towards eight o'clock. On the seventeenth the concave edges of the teeth, which have had a yellowish cast for many days, seem sharp and hurt the tongue."

It almost seems as if some of these symptoms might have



appeared even if the patient had not smelled the thirtieth dilution of aloes.

Much is said to depend upon the mode in which the attenuations are prepared. Mere dilution, even carried to an extreme, will not confer the extraordinary power which homœopathic medicines possess. In this respect, unfortunately, modern followers of Hahnemann do not follow him. He laid down that each successive dilution should receive only *two* shakes; having begun with *ten*, and found the result too potent. "One drop," he says, "of tincture of moor-grass of the thirtieth potency, each potency having received twenty shakes, put in jeopardy the life of an infant to whom it was given, while the same medicine, when each dilution has received only two shakes, will cure the disease early and promptly." The *American Homeopathic Pharmacopeia*, on the other hand, directs that each attenuation of a liquid preparation should receive "ten powerful downward strokes of the arm;" and that each potency of a dry substance should be ground in a mortar for exactly eighteen minutes and scraped together again for twelve. The *North American Homœopathic Journal* allows every man to shake his potencies as much or as little as he pleases; Jenichen shook his arsenicum most powerfully one and a half million times, counting as a genuine shake "only such as produced a metallic ringing sound of the glass bottle;" Boericke and Tafel content themselves with twelve strokes.

However essential to true homœopathy this childish doctrine of dilution and potency may be, there can be little doubt that the modern homœopathic practitioner, even while professing to follow Hahnemann, has abandoned infinitesimal dosage. Dr. Browning gives an instance from his own experience:—

"Not long since the author was called to the bedside of a young lady, who was under treatment by a prominent homeopathist. He discovered that, among other things, she was taking, under his direction, 20 grains of quinine a day, occasional 10-grain doses of antipyrin, and 10 drops of Fowler's solution of arsenic every four hours. The patient was then suffering from arsenical poisoning, of which she shortly afterwards died."

Some do not even pretend to follow the great teacher in this part of his doctrine. Our author quotes from *The Homeopathic Times* of 1878:—"The heresy of high dilution should have no place in our creed nor home in our school, if we desire to advance and expand our influence, and secure for it public regard and

confidence, because it cannot be demonstrated by any known method that either medicinal power or presence exists in the exalted attenuation." And from Dr. Kidd: "I have cast aside dynamized drugs *in toto*, as untrustworthy and unjust to the sick."

At the annual meeting of the Philadelphia County Medical Society, held 24th May, 1893, the President, Dr. John B. Roberts, delivered an address on "Points of Similarity between us and Homœopathic Physicians." His last sentence contains his thesis, and shows that conciliation is his object. "In the course of five or six decades," he says, "mutual observation and gradual deviation from our respective original standards have brought us and the homœopathists so near together that the similarities quite outnumber the dissimilarities." He shows, by quotation from homœopathic authorities, "that few homœopathic practitioners now believe in the augmentation of the medicinal power of a drug by diminishing the quantity administered. Hahnemann's assertion of the increasing potency of these infinitesimal doses seems to have lost its supporters among homœopathic practitioners." The latter believe in the law of similars as no more than a useful indication of a remedy, "often, perhaps very often," but hold themselves free to treat many diseased conditions without reference to Hahnemann's primary law. We cannot better illustrate how "far gone from original righteousness" is the ordinary homœopathic practitioner of the present day than by the following quotation, made by Dr. Roberts, from the *Homœopathic News* for March, 1892. This organ of Homœopathy boldly states in an editorial article:—

"We venture to assert that had not our school drifted away from the practice of forty years ago, it would have been dead and buried long since.

"We have drifted away from the practice of giving a pellet of the two-hundredth or higher, and waiting thirty or sixty days for its curative effects; from the prescribing of a high dilution by smelling the dry pellets, those same pellets 'grafted' by shaking a thousand pure pellets with one medicated by the ten thousandth.

"We have drifted away from a belief in provings made by taking a single dose of the one-thousandth, thirtieth, or third even, and then recording all the symptoms felt by the prover—natural symptoms, colds, diarrhœa, &c., for the next sixty days!

"We have drifted away from the carrying a pocket repertory to the bedside of the patient, and recording the symptoms in columns, and a weary search in said repertory until a mechanical similitum was found.

“We have drifted away from the days when our pseudo-surgery was a disgraceful farce, when we expected silica to open a felon, or hepar sulphur to lance an abscess.

“We have drifted away from the narration of miraculous cures with the highest attenuations, which were not cures at all, but a spontaneous finale of a self-limited disease.

“We have drifted from the days when our practitioners would sit by the bedside of a woman dying of uterine hæmorrhage, hunting in a repertory for the ‘indicated remedy,’ while the vital fluid was ebbing away, without recourse to the tampon or ergot.”

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*The Leeward Islands Medical Journal, being the Proceedings of the Leeward Islands Branch of the British Medical Association. 1892. Vol. II. Edited by H. A. ALFORD NICHOLLS, M.D., F.L.S.; Ch. M. Aberdeen; M.R.C.S. Eng.; Corresponding Member of the New York Academy of Sciences. London: J. & A. Churchill. 1892. Pp. 156.*

It speaks well for the enterprise and fraternity of the members of the profession in the Leeward Islands that, scattered as they are in eight islands, or groups of islands, they maintain a branch of the British Medical Association. It speaks well for their influence and persuasive powers that they can have their Proceedings printed in London, bound in cloth, and published by Messrs. Churchill at the expense of Government. Volume I., which we noticed on its appearance, cost £40. It was gently hinted that the Branch might refund part of this sum, but the suggestion was received with unanimous disapproval—excusably, inasmuch as the credit balance amounted, at the close of 1891, to only £5 17s. 2½d.

We marked a few of the papers for brief notice. Dr. Pieréz reports a case of puerperal fever which he treated successfully with the oil of *Eucalyptus globulus* (in three-minim doses dissolved in a tincture and diluted), after quinine and iron had failed. During the lady's illness her fowls took to dying, two, three, or four daily. Dr. Pieréz traced the mortality to a tub of water, in which clothes, &c., from the patient were steeped, and from which he saw fowls drinking. It should be added, however, that this theory was not favourably received at the meeting. The late Mr. A. P. Boon briefly described an epidemic of jaundice which prevailed amongst the coloured population in the months of June, July and August. The negro's confidence in European medicine, generally strong, fails, it appears, when jaundice is concerned. He

prefers to treat it with decoctions of his own brewing. In this instance, the epidemic being mild, no harm was done. The ætiology is very obscure. The author suggested that the causative poison was of faecal origin—insanitary conditions having free play in the Negro quarter. Of the thirteen papers contained in this volume, Dr. Freeland's on "Chyluria" is the longest. It is an excellent description of this remarkable parasitic disease.

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*Carlsbad: a Medico-Practical Guide.* By EMIL KLEEN, M.D., PH.D. The Knickerbocker Press: G. P. Putnam's Sons. 1893. Pp. 101.

LIKE many others of its kind, this book suffers from the attempt to combine two incompatible things—a guide to doctors as to what patients to send to Carlsbad and a guide to patients what to do at Carlsbad. Each object is to a great extent fulfilled, but the "blend" is not satisfactory. The information for patients at Carlsbad is given in a full and interesting manner, and numerous useful hints are included. The questions of expense, choice of lodgings, excursions, and so forth, are well treated. In the more medical parts the author holds some views which differ from those of other writers on Carlsbad. For instance, he considers that anæmia is not a "contra-indication against a cure in Carlsbad," and he does not forbid patients taking simultaneously mineral waters of different kinds.

The author apologises for imperfections of style and language, caused by having had to write in a foreign tongue, but the lapses are very few, and the diction is easy and clear.

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*The Dental Profession.* By HENRY SEWILL. London: Baillière, Tindall, & Cox. 1893. Pp. 36.

A PAMPHLET describing the development and present position of dental surgery. It contains much that is interesting, but surely the author is going a little too far in claiming that dentists are injuring their own financial prospects by putting down quackery; certainly few medical men will consider the following anything but a one-sided way of looking at the medical aspect of the matter:—"Now, of these classes of invalids, with ailments manufactured or aggravated by quackery, the vast majority in the end gravitate into the hands of qualified men, and thus money which



would not otherwise be earned is put into the pocket of the profession." Many of the cases treated by quacks are pretty well plucked before they pass on to the medical profession.

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*Fiftieth Annual Report of the Managers of the Utica State Hospital, for the Year ending September 30, 1892.* Albany: James B. Lyon. 1893. Pp. 73.

THE hospital for the insane of New York State is situated at Utica, and the official Report of the institution for its fiftieth year, ending 30th September, 1892, is before us. Its insane population averaged 811, ranging from 865 to 775—206 were discharged, 87 cured, 43 improved, 68 unimproved, and 8 "were not insane." Deaths were 80. The recovery rate was 25·66 per cent. of admissions, 30·42 per cent. of discharges, and 10·72 per cent. of average population. The proportion of recoveries is lower—"evidence of growing scruples against labeling as recovered patients whose mental poise has not been entirely re-established." The percentage of deaths was 9·86 of average population, 7·12 of total treated. No evil effects had resulted from the association of the sexes at meals, which, on the contrary, had produced "observance of better table manners, a neat personal appearance and greater decorum generally." Fifty-nine per cent. of the male patients were in one month employed in useful work; in another, 66 per cent. of the females, the average for both sexes being 54·19. Eleven trephining operations were experimentally performed on epileptics. Recovery from the effects of the operation was rapid. In some cases there was temporary improvement in mental condition—permanent in none.

As to habits:—"Of the 345 persons admitted during the year, 26 men and 4 women were habitually given to intemperance; 52 men and 12 women were moderate drinkers; 51 men and 10 women were addicted to the use of tobacco; 1 man and 1 woman were cases of the opium habit; 36 men and 133 women did not use alcoholic stimulants, tobacco or opium in any form; and the habits of 7 men and 12 women were unascertained." As to causation:—Of 345 cases admitted 32 were attributed to intemperance in drink, 3 to "intemperance in drink and influenza," 2 to "intemperance in drink and opium," 4 to excessive use of tobacco, 15 to masturbation. Of 87 patients discharged recovered, 32 had been insane not more than three months. Of 345 admissions,

New York State contributed 220, Ireland 49, Germany, 22. The Rules for Admission, as settled by the State Laws, are given at the end of the Report. The certificate must be signed by two physicians "under oath;" but within five days of confinement the certificate must "be approved by a judge or justice of a court of record of the county or district in which the alleged lunatic resides," who can, if he thinks it necessary to his investigation, call in the assistance of a jury. A physician signing such certificate must be of reputable character, a graduate of some incorporated medical college, a permanent resident of the State, and shall have been in the actual practice of his profession for at least three years"—these qualifications being certified by a judge of court of any record. Finally, "it shall not be lawful for any physician to certify to the insanity of any person for the purpose of committing him to an asylum of which the said physician is either the superintendent, proprietor, an officer, or a regular professional attendant therein."

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*Public Health Laboratory Work.* By HENRY R. KENWOOD, M.B., including contributions by RUBERT BOYCE, M.B. London: H. K. Lewis. 1893. Pp. 491.

To deal with public health laboratory work in such a limited space much has to be omitted and much condensed. As a rule this is well done, the condensation not lessening the clearness, and the more important processes being retained. It is hardly correct to say that successful prosecutions under the Food and Drugs Act are extremely rare in connection with alcohol. Convictions for selling gin below the limit of strength have frequently been obtained. The only test given for alcohol is distilling and taking the specific gravity; there is no other test for the presence of alcohol, which is an omission, considering the number of "non-alcoholic" drinks sold which are not always above suspicion.

In the plate illustrating "Objects commonly found in impure water (and air)," there are some curious subjects figured. Vorticella, for instance, is not likely to be found except there are algæ present, which will be much more obvious; and hydra, although it may turn up in a sample of water, is unlikely to be present unless there is a large supply of vegetable and animal matter present; if it does turn up the illustration will not give much assistance in identifying it. Some of the other illustrations, also, are poor; if the description "Nest of beakers" was removed from

Fig. 9, the cut might be circulated as a puzzle. On the whole, however, the Handbook can be safely recommended as convenient, useful, and accurate.

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*A Treatise, Practical and Theoretical, on Cancers and the Cancer Process.* By HERBERT SNOW, M.D. London: Churchill. 1893. Pp. 384.

THE author of this work starts with a general view of his subject. He points out that every cancer (among which he includes, as we shall see, sarcomata and other malignant growths) is but a mass of actively-growing cells, the product of pre-existing cells which they resemble as children do their parents. They offer, however, certain peculiarities by which they differ from their progenitors. They are larger, have larger nuclei, are more numerous and more liable to degeneration. They multiply with enormous vigour and rapidity, not only disproportionately to the surrounding tissues but actually at their expense, diverting their nutriment, and eroding and, as it would seem, devouring them.

The two main features of malignancy are, first, this progressive erosion of surrounding parts; and second, the infectivity of the new cells, by which they are able, when carried to distant parts, to cause metastasis, which may become secondary centres for further diffusion:—

“The conclusion is forcibly presented to us that the excessive cell-multiplication which we still find to characterise all malignant lesions, combined with the hostility of the morbid elements to the healthy, is but a process of devolution, of reversion by cells to a primordial amœbiform condition, in which they become parasitic, or rather autositic. Inasmuch as the nervous system was not only the controlling agency by which transformation of embryonic cell-units into more or less specialised tissue originally took place; by means also whereof the healthy balance of component elements is maintained through the somatic life of the organism; it further seems permissible to regard this ‘cancer process’ as essentially consisting in a local ‘cell-rebellion,’ certain cells casting off their allegiance to the central authority.”

The parasitic theory of cancer is considered to be in the highest degree impossible:—

“No suspicion of propagation by contact exists; there is no relation to climate or soil; no considerable number of persons become a prey to

cancer in any single place; even experimental inoculation from one animal to another is rarely successful.

“From these considerations, regarded in combination with the microscopic and clinical features which are seen to attend the progress of every cancerous malady, the conclusion follows that, in our present lights, cancer is not introduced from without but is the product of agencies within; that no microbic parasite is to be sought, but that the cell-elements of the body, under the influence of some mysterious force, themselves become autositic.”

This reversion of cells to an autositic condition always begins only at one point. If there are two cancers in the body one is always secondary to the other. Much of the difficulties which attended the recurrence of cancer after removal, and which apparently gave some support to the theory of a constitutional origin of the disease, has been removed by the discovery by the author of an infection of the bone marrow, where cancer germs may lie dormant, like resting spores, and eventually, after months or years, may pass into the blood and give rise to multiple metastasis and death. Dr. Snow expresses the strongest disbelief in heredity as a factor in cancer-production, but ascribes the cell proliferation to neurotic cancer—a view which is borne out by the frequency with which cancer follows mental distress and anxiety. So strongly does he hold this opinion that he speaks of “the generation of cancer solely by distress of mind” as a matter of every-day experience. To this he attributes the increasing prevalence of cancer which all statistics show.

While women are twice as prone to cancerous disease as men are, this pre-eminence is due altogether to the frequency with which the sexual organs, breast, and uterus are affected in women. Men and women suffer with equal frequency from cancer of the rectum, abdominal viscera, extremities, and external genitals, while men are more frequently affected by cancer of the face, tongue, mouth, œsophagus, bones, lymphatic glands, bladder, and larynx.

The following is the classification of cancer adopted, which, it will be seen, includes much not ordinarily called cancer:—

I. *Epithelioma*.—Derived from the epithelial cells of the epidermis, or of the mucous membrane, whether squamous, columnar, or transitional.

II. *Carcinoma*.—Derived from the epithelial cells of acinar secreting glands.



III. *Sarcoma*.—Generated by the cells or corpuscles of the connective tissues.

IV. *Lympho-carcinoma*.—Derived from the cells of the various lymphoid-tissues, principally from those contained in the lymph-glands.

V. *Cylindroma*.—Derived from the cells of tubular gland follicles, and histologically constituting an aberrant reproduction of tubular gland-structure—practically a variant of epithelioma.

VI. *Rodent Ulcer*.—A cancerous reproduction of hair follicle structures originating in the cells of the outer root sheath—also a modification of epithelioma.

VII. *Endothelioma*.—Generated by endothelial cell-plates—a rare and obscure form of cancer.

VIII. *Myosarcoma*.—Springing from the nuclei of organic muscle film.

IX. *Blastoma*.—The cancer of vestigial residue.

From these genera, species arise by degeneration or higher development. Of these examples are to be found in colloid carcinoma, melanotic cancer, osteoid sarcoma, myxoma, chloroma. There are, besides, rare tumours, many of which lie on the borderland of cancer, and only occasionally display malignancy, such as thyroid cancer, Billroth's plexiform sarcoma, xeroderma pigmentosum, granuloma fungoides, cheloid, intracystic vegetations, carcinomatous and sarcomatous, fibroma molluscum, rhabdomyoma, and psammoma.

In a chapter on causation the author argues strongly for the neurotic origin of malignant growths. He points out the frequency with which cancer follows mental distress, and the rarity with which idiots or lunatics are affected by malignant disease, and gives a table in which the malignant diseases are classified into (a) those generated by mental distress as the direct and sole exciting cause—this group includes carcinoma only; (b) those directly produced by mechanical agencies, but towards which depressing emotions appear to predispose—these are epithelioma, sarcoma, myosarcoma, lymphosarcoma, cylindroma, melanotic sarcoma; and (c) those in which the presence of no neurotic element has so far been ascertained; this group includes the other species and varieties given above under classification.

A somewhat remarkable account is given of the formation of the well-known epidermic peculi so common in flat-celled cancer or

epithelioma. The centre of the mass consists of a group of cells filled with mucoid fluid, around which the other cells are concentrically arranged and compressed so as to have a fibrous appearance. The starting-point is never a single cell, but always a group of cells. The whole thing is compared to a myxoma on a small scale, and its formation attributed to the tendency with which the cells have to secrete a mucoid fluid. In accordance with this it is stated that the peculi are "comparatively small and ill-defined" in cancer of the skin, while they attain their greatest development in cancer of the mucous membrane. The whole of this is, we think, contrary to general experience and to what is known of the normal evolution of the cells of squamous epithelioma.

An interesting account is given of the infection of the bone marrow, more particularly that which occurs in carcinoma of the breast:—

"The adjoining *humerus* is ordinarily the first to become implicated. At a period subsequently to enlargement of the axillary lymph-glands, the upper epiphysis becomes tender to the touch, and seems, on careful comparison with the corresponding bone on the opposite side, to be somewhat enlarged. Concurrently the patient complains of aching pain down the back of the arm. There is no real thickening of the bone, the apparent enlargement being due to an irritative hyperæmia of the periosteum, which may eventually disappear. Later on, the *sternum* at the junction of the upper with the middle portion begins to show undue prominence, and very gradually bulges. This 'sternal symptom' is hardly ever noticed by the patient; it causes no pain or inconvenience, rarely ever tenderness; it is only noticeable when the person is erect; disappears, or nearly so, when one is lying down. It may be simulated by natural conformation of the part; it occasionally, but not often, ultimately proceeds to a distinct tumour formation; it is explicable on the ground of a gradual infiltration and decalcification of the bone by malignant cells, whence a ready yielding to pressure when the thorax is held erect."

The infection of the humerus takes place through the lymphatics, the current in which is often altered or even reversed owing to obstruction by cancerous growth. The infection of the sternum is also by the lymphatics, but indirectly. The cell particles are brought to the remains of the thymus gland, which never totally disappears; there they grow and infiltrate the bone by direct contiguity. Deposits in distant bones are due to general blood infection dependent on that of the marrow.

Secondary infection of the bone marrow in other malignant

diseases than carcinoma of the breast occurs, but always gives rise to tumour or fracture.

In the second part of the book the clinical peculiarities and morbid anatomy of the various species of cancer are detailed *seriatim*, and the descriptions are illustrated by a large number of plates.

The third part gives an account of cancer in special organs, with its most appropriate treatment.

The sole curative method of treatment consists in the removal of the peccant cells. But it is urged that with the operation the proper treatment of the case is only commencing. If a partial operation only can be performed, burning instruments—actual cautery, galvanic cautery, Paquelin's cautery—are far preferable to the knife, as the former are less apt to be followed by rapid growth of the part left behind. Caustics and electricity are condemned. The most remarkable part of this chapter on treatment are the paragraphs on the use of opium:—

“Upon malignant lesions the continued administration of opium, or of its derivative morphia, appears to exert a direct and conspicuous retardative action, materially checking the cell growth in both primary tumour and in its secondary metastasis. Thus, in mammary new growths, taken as the most open to observation, we find an atrophic condition often brought about by the early and persistent administration of these medicines. The breast tumour commonly diminishes in size, shrivels, refuses to ulcerate, progresses either not at all or at a very low rate. The metastatic deposits, if present, long remain stationary. Not only is the patient's mental comfort enhanced, pain obviated, the vital powers sustained, several years of fairly enjoyable life thus procured, but there is an improvement in the objective phenomena, which can be attained by no other possible method of treatment. Tonics are but *placebos*; neither sustaining strength nor checking the ravages of the disease.

“Whenever the perfect eradication of a cancerous growth is hopeless, treatment by small, gradually increased doses of opium or morphia should be immediately instituted, and steadily persisted in until the close; *this, with the object of holding the disease directly in check*, and not merely of alleviating symptoms. To withhold opium from the importunate sufferer until pain necessitates its use, is a barbarity which cannot be too emphatically condemned. After any operation, which will probably be followed by re-appearance, it is expedient to promptly induce an opium or morphia habit.”

## PART III.

### SPECIAL REPORTS.

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#### REPORT ON SURGERY.

By R. GLASGOW PATTESON, M.B. Univ. Dubl.; F.R.C.S.I.;  
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##### SYNOPSIS:

- I. ACUTE TORSION OF THE SPERMATIC CORD.
- II. STRANGULATION OF INTESTINE FOLLOWING OPERATION.
- III. SALINE FLUSHING AFTER LAPAROTOMY.
- IV. THE OPERATIVE TREATMENT OF MAMMARY CANCER.
- V. RELAPSING TYPHILITIS AND APPENDICITIS.
- VI. LITTRÉ'S HERNIA: A HISTORICAL NOTE.

No brilliant or epoch-making advance has marked the twelve months of surgical history that have passed. But if that is true, it is equally true that in many directions theories are being tested by the touchstone of experiment, and everywhere experimental pathology is becoming the handmaiden of scientific surgery. It is this multiplicity of paths in which surgical progress is travelling which makes it at the present time so difficult to single out those subjects that are likely to possess the greatest interest for the largest number of readers. The daily increasing mass of surgical literature both at home and on the Continent, but pre-eminently at the present time in America, renders it more and more an impossible task to endeavour to digest the raw material and furnish ready-made the nutrient food.

##### I. ACUTE TORSION OF THE SPERMATIC CORD.

In the *British Medical Journal*, April 9th, 1893, Mr. Gifford Nash reports a second case of strangulation of the epididymis due to torsion of the spermatic cord, which differs from the one previously reported by him in that reduction was effected without operation. The patient was a lad, aged nineteen, who had spent the afternoon



in athletic exercises, and shortly afterwards began to feel out of sorts. He went to bed, and soon complained of pain in the right testicle, which was later followed by vomiting, a feeling of faintness, and collapse. When seen the testicle and epididymis were very tender and, the latter especially, somewhat swollen. There was no urethral discharge, and the external abdominal ring was normal. About an inch above the body of the testis there was a tender lump connected with the cord, and the epididymis lay in front of the body of the testis. Reduction was effected by rotation of the epididymis to the patient's right after rotation in the reverse direction had proved ineffectual. The pain immediately was relieved, and in a short time the swelling of the testis and epididymis had disappeared. Previous cases have been recorded by Mr. Nash, Mr. Bryant, Mr. Davies Colley, and Mr. Herbert Page. In all the cases the patients were young, the ages ranging from fourteen to nineteen. In the three first cases there was an incompletely descended testicle involved; in Mr. Page's case there coexisted an inguinal hernia; but in the present case the parts were perfectly normal. In all the previous cases the true condition was recognised only by an exploratory operation. In Mr. Bryant's paper, read before the Royal Medico-Chirurgical Society in 1892, he referred to this as "a hitherto undescribed affection," and suggested the probability of many of the cases of atrophy of the testicle, hitherto supposed to be due to some obscure inflammatory process, being in reality cases of atrophy due to torsion of the spermatic cord. Mr. Bryant apparently regarded an "incompletely descended condition" of the testis as an essential factor in torsion of the cord; but this view requires modification in the light of subsequent cases in which this anatomical abnormality was not present. And further, undoubtedly many cases of atrophy occur in which the testicle had long prior attained its usual situation. There is an important link in the chain of evidence wanting, but nevertheless the suggestion is a valuable one as opening up a new field for observation, and supplying a possible explanation of the mode of origin of some of these cases, hitherto admittedly obscure.

## II. STRANGULATION OF THE INTESTINE FOLLOWING OPERATION.

At a meeting of the Surgical Society of Paris (*Revue de Chirurgie*, 1892) M. Lucas Championnière brought forward the histories of six cases of this occurrence in order to show, in oppo-

sition to a view previously put forward by some members that the diagnosis of post-operative strangulation was simple, that in his cases—in some of which the strangulation was acute, while in others the obstruction was gradual—the diagnosis was not simple, but involved in many obscurities. In the first case ovariectomy had been performed with general diffuse peritonitis as a complication. All went well for eight days, when symptoms of strangulation set in. The abdominal wound was reopened, and dense fibrous adhesions were found to exist between numerous loops of intestine and a large mass of omentum. These bands were divided, and the patient recovered. In the remaining five cases the operations had been performed for various kinds of hernia—in one for the radical cure of an epiplocele. The contained omentum was found to be gangrenous, and was removed in the usual way. On the eighth day symptoms of strangulation supervened. Abdominal section revealed a loop of intestine adherent to the belly wall. This was freed, but behind it was found an omental abscess, which was opened and washed thoroughly clean. The patient made a good recovery. Two other cases were operations for the radical cure of adherent herniæ. In one the patient's life was saved only by a second laparotomy at the end of a month and the establishment of an artificial anus. The other patient died with symptoms of strangulation, but without surgical intervention during the author's absence, and the autopsy showed strangulation by a peritoneal band which would have been capable of being easily remedied. The fifth case was also a radical cure of an epiplocele. The patient got up without leave on the eighth day. Subsequently a gradual diminution was noticed in the number of motions passed, ending finally in total suppression, with the formation of a tumour on the side opposite to the site of operation. This was cut down upon, and was found to consist of a large effusion of blood causing obstruction. The patient recovered. In the sixth case—one of strangulated hernia—all went well until the eighth day, when symptoms of acute obstruction developed. The abdomen was opened, and a loop of intestine was found adherent to the anterior abdominal wall—so adherent that the parietal peritoneum had to be pulled off to set it free. The patient recovered. In reviewing these cases M. Lucas Championnière directed attention to the difficulties of diagnosing between (*a*) a true strangulation, (*b*) an obstruction, and (*c*) a fecal retention due to intestinal paralysis—all three conditions giving rise to the common

symptoms of obstruction of the lumen of the gut and faecal vomiting. A point of interest in this remarkable series of cases is the almost absolute uniformity in the period at which symptoms of obstruction showed themselves—viz., on the eighth day. So that we may for the future be on the look out for any of these conditions until after that period has passed. One other lesson they teach, and it is one that surgeons will do well to remember—in all cases of operation on the intestinal area where obscure symptoms manifest themselves during the first ten days, the imperative necessity of eliminating doubt and affording relief where possible by early reopening of the abdominal wound where one exists, or the prompt performance of an exploratory laparotomy. The results obtained by M. Championnière will inspire confidence and hope in future operations.

### III. SALINE FLUSHING AFTER LAPAROTOMY.

In dealing with the prevention of intestinal paralysis and obstruction after abdominal operations M. Championnière, on the same occasion, said that in order to eliminate this puzzling factor in diagnosis he was in the habit of pushing to an extreme the practice recommended by Mr. Lawson Tait, and of purging every case of laparotomy freely, and that within two or three hours after the operation was completed. Since adopting this practice he has ceased to be troubled with the rises of temperature and the gastric embarrassments which formerly gave such trouble in cases treated with opium. In the discussion which took place M. Terrillon expressed his entire approval of the method of purgation, but he deferred it to a later period—the second or third day. If there is any rise of temperature the drug employed is sodium sulphate, in order to procure rapid evacuation; otherwise calomel was invariably used. Since adopting this line of treatment he had not to deplore any of those accidents which used to be most frequently met with in those cases in which opium was freely used. Some dangers of the method were referred to by MM. Berger and Terrier. The former instanced a case in which he lost an old woman who had been operated on for strangulated hernia by giving her a purgative on the fifth day. A small perforation was found in part of the strangulated loop, which was surrounded by evidences of recent adhesions which had been broken down by the excessive intestinal peristalsis. M. Terrier's case was a woman operated on for salpingitis to whom a purgative was administered

on the third day. Fæcal extravasation took place through a small intestinal fistula which had become secondarily established. Without advocating or believing in the necessity for such wholesale "saline flushing" as M. Championnière adopts, no doubt now exists as to the value of the method under certain conditions; and it may be remarked that the cases adduced in opposition to the practice are by no means conclusive, as these are accidents that must always in the nature of things happen from time to time, and might and do equally occur without the administration of any purgatives whatever.

#### IV. THE OPERATIVE TREATMENT OF MAMMARY CANCER.

One of the most striking facts in the natural history of disease during the past fifteen or twenty years has been the continuous and enormous increase in the number of deaths from cancerous diseases. That this is due not merely to more accurate registration and to the earlier recognition and more precise differentiation of the malignant diseases is shown by a cursory examination of the figures available. For if such discrimination by separating into their proper groups cases of sarcoma and of carcinoma increased the sum total of malignant disease, it should by separating the varieties lessen the relative proportions of either group; but, on the contrary, we find that, while more accurate discrimination is evident, the number of cases returned as "cancers" is out of all proportion increased. Furthermore, it is the experience of most metropolitan surgeons that the number of cases sent up from the country for operation has markedly increased during recent years; and this corroborates the testimony of many country practitioners that whereas in numerous districts cancer was formerly a rarity it is now a disease of everyday occurrence. In view of this greater prevalence it is a question of paramount importance for surgeons to endeavour to make their operations as radical and curative as possible.

Clearing out of the axilla has now become such a recognised and routine procedure with all progressive surgeons that it is hardly necessary to insist on the supreme importance of its being thoroughly carried out in all cases even where careful examination fails to find any evidences of glandular infection. A still more extended method of operating has been recently advocated by Dr. Robert Weir, of New York (*Medical Record*, December 31, 1892). Basing his arguments on the statistics of Schmidt, founded on the



cases observed in Küster's clinic in Berlin, which showed that "twenty-six per cent. of the cases not presenting, previous to operation, axillary involvement to the usual palpation revealed enlarged glands at the time of operation," he lays down as a starting-point the two following axioms:—

"1. That every mamma in which a cancerous nodule exists is already very extensively diseased—perhaps *in toto*.

"2. That secondary infections take place either through the axillary glands and lymphatics, or through the adjacent skin; or, lastly, through the retro-mammary fat and fascial tissues alone, or, in addition, through the lymph-vessels of the pectoral fascia and of the pectoralis major muscle itself.

"From these facts it is equally evident that the whole breast must be removed, and that the section through the skin must be made wide of the growth, irrespective of the formation of a line of subsequent union; also, that the axillary contents should be thoroughly cleaned out; and finally, and perhaps most important, if the disease extends to the depths of the gland, that the pectoral fascia and generally a portion of the pectoralis major muscle itself must be removed." In order to determine at the time of operation whether the portion of skin removed is free from the infected area he recommends the making of a fresh frozen section during the performance of the operation by a competent microscopist in order that the surgeon may be sure of his ground before closing the wound, or, as an alternative method, the nitric acid test as applied in the surgical clinic in Edinburgh. "This is an important point, because it is admitted by all that the recurrences are most common—viz., seventy per cent.—in the skin and in the tissues near the site of the original infection. It is for the further avoidance of this recurrence (for in the axilla recurrence is rare—less than 2 per cent.) that, in addition to the liberal removal of skin, Heidenhain, of Berlin, has proposed that always in the deep involvement of the mamma, or when the retro-mammary fat or tissue is invaded by the neoplasm, not only these tissues should be widely removed, but that a goodly portion of the pectoralis major muscle itself—in his own words, 'a continuous layer of the muscle substance'—should be cut away." In proceeding to describe the operation of clearing out the axilla the author lays stress on an important rule not sufficiently insisted on—to expose the axillary vein at the beginning of the procedure. If this simple step is carried out we have at once the seat of greatest danger under

view, so as to keep it out of harm's way ; or, in case of accident, so as to have it immediately under control. And here the writer refers to another point first duly emphasised by Küster—the importance of, if possible, seeing and avoiding the second and third subscapular nerves, as their severance is the common cause of the subsequent inability to raise the arm after these operations. This brings us to the important addition to the operation practised by Dr. Weir. "To lend further security," he proceeds, "to the clearing out of the axilla, an expedient which I have employed now for many years should, in my judgment, be always resorted to. It is to explore higher up in the axilla that space, called by the Germans *Mohrenheim's*, situated just below the clavicle. This is accomplished by separating with the fingers the cellular plane between the pectoralis major and pectoralis minor muscles, until the clavicle is felt, and then by flexing the arm somewhat upon the chest the pectoralis major muscle itself is lifted up by the fingers of an assistant or by a retractor. By so doing, this space, containing the axillary vessels and a small amount of fat, is readily exposed to view and to palpation. In it will often be found, if enlarged glands have been met with in the axillary fat, one or more small-sized carcinomatosly involved glands. With the fingers, and sometimes the end of a curved blunt scissors, not by cutting, this fat can be entirely removed. If any difficulty in so doing occurs, the finger passed underneath the pectoralis minor muscle will crowd this fat sufficiently forward to bring it entirely within the control of the surgeon. I venture to repeat that this is a region the exploration of which I have for a long time insisted upon as being of great importance. Its investigation has not usually been dwelt upon, but I cannot but feel that its systematic examination will lend additional security to the patient. The separation of the two pectoral muscles likewise often reveals a diseased lymph-vessel running alongside the cephalic vein."

This certainly appears to be a distinct advance in the treatment of that class of cases where numerous small enlarged glands occupy diffusely all the axillary fat—those cases, in other words, in which glandular recurrence is most frequent. But it may be objected to such an extensive addition to an already extensive operation that it must gravely add to the severity of the procedure and minimise the patient's chances of recovery from the surgeon's knife. On this point the author must speak for himself:—"Of one hundred and twenty-five primary operations conducted in

this manner I have not had a single death. . . . Dennis in seventy-one cases had but one death. Schmidt's later cases showed but two per cent. of mortality." As to the radical nature of the operation and the prognosis as to life:—"Twenty per cent. of the cases operated on are reported by Schmidt as cured; twenty-five per cent. of similar cures are given by Dennis. My own data give me in sixty traced cases nearly twenty per cent. of cures. By this is meant that no recurrence has taken place within three years from the date of the operation, a generally received indication of a permanent successful result, though not an absolute one."

Such an array of figures as this disarms criticism, and the results obtained more than justify, they commend to others the intrepidity of this advance in the treatment of cancer of the breast.

#### V. RELAPSING TYPHLITIS AND APPENDICITIS.

In an interesting paper in the *British Medical Journal*, April 22, 1893, Mr. Frederick Treves details a series of fourteen cases treated by operation. Adopting the general term "typhlitis" for the sake of convenience he divides cases of the disease into two groups—*a* when commencing in the cæcum, and *b* when commencing in the appendix. The former class is much more rarely met with, and is due to some ulceration of the mucous membrane which has proceeded to a depth sufficient to induce peritonitis. "By far the commonest form of ulcer, however, which is found associated with this particular variety of typhlitis is the stercoral ulcer." This lesion is produced by the mechanical and chemical irritation of long-retained fæces, or of masses of undigested food." And operation has demonstrated that these conditions may give rise to well-marked symptoms quite apart from any inflammation of the appendix. In the second class of cases (those commencing in the appendix) Mr. Treves arranges the anatomical conditions into four groups. 1. *There has been moderate torsion of the appendix.* This is a natural result of the scanty mesentery of the appendix, so that torsion or bending of the process interferes with its blood supply through the mesentery, and so produces engorgement, with, it may be, occlusion of the tube at the point of bending. This occluded portion becomes distended with a muco-purulent or purulent secretion, with probably some ulceration of the mucous membrane. 2. *There has been extreme torsion of the appendix.* In this variety gangrene results. The gangrene may be very acute, involving the whole process, or it may be limited to the points of

torsion, the appendix being held together by sloughing segments. 3. *A foreign body has lodged in the appendix.* This is usually stated as a frequent cause, but Mr. Treves explodes this fallacy. "In 146 examples of trouble in the appendix Matterstock found a foreign body in 9 instances only." 4. *A primary ulceration of the appendix exists.* "In this connection may be mentioned the ulcer of tuberculosis, and the destructive process associated with actinomycosis." No definite symptoms can be associated clinically with these various forms.

As regards the question of operation Mr. Treves is progressive, but at the same time conservative. Recognising that many cases get well without surgical intervention he wisely decries wholesale operation. "I am aware," he writes, "of many cases in which a patient has had three or more attacks of typhlitis, and has then ceased to be troubled with any further outbreaks. In some examples of the relapsing form much can be done by medical means, by diet, by attention to the bowels, and by placing the patient under conditions more favourable to a state of peace within the abdomen. . . . The following are the more important circumstances which would justify an operation, and in all the cases with which I have dealt one or other of the subjoined conditions has been present:—

"1. The attacks have been very numerous. (In one of the author's cases there had been nineteen relapses.)

"2. The attacks are increasing in frequency and severity.

"3. The last attack has been so severe as to place the patient's life in considerable danger.

"4. The constant relapses have reduced the patient to the condition of a chronic invalid, and have rendered him unfit to follow any occupation.

"5. Owing to the persistence of certain local symptoms during the quiescent period there is a probability that a collection of pus exists in or about the appendix.

"I have never operated in any case in which I have not been able to make out the enlarged appendix still in evidence after the acute symptoms have passed away."

Mr. Treves then describes in detail the steps of the operation as practised by him, and for these we must refer the reader to the paper as published. As an instance of the complications likely to be met with it may be mentioned that adhesions were found between the appendix and the omentum, the ureter, the iliac



artery, the cæcum, the bladder, the ileum, and the rectum, while in one case the process was found lodged in the inguinal canal.

In the same number of the *Journal* Mr. Gilbert Barling gives an analysis of sixty-eight cases of appendicitis treated at the General Hospital, Birmingham, since 1885. Of this total only five (3·4 per cent.) relapsed. Of these, four ultimately recovered under treatment; "the fifth was operated on and died." But Mr. Barling qualifies this formidable statement by remarking that this operation was done before the procedure was put upon its present sound surgical basis. As to the cases that require operation the author divides them into three groups:—

"1. Those in which pus can be diagnosed with something like certainty.

"2. Those in which, from the acuteness of the symptoms, perforation or gangrene of the appendix may be regarded as imminent if it has not already occurred; and

"3. Those in which prolonged rest, blistering, &c., fail to prevent relapse"

In the *Medical Record*, March 18, 1893, Dr. Ball, of New York, also publishes a series of twelve cases of "chronic relapsing appendicitis." He adopts this term, suggested by Talamon, to distinguish this group from cases of "recurring appendicitis." The two are thus differentiated. "In the latter the attacks recur at long or irregular intervals, and are followed by periods of good health. Each attack is an independent affection. While it undoubtedly predisposes to a recurrence, that event may never occur. In the former (chronic relapsing appendicitis) there is no return to absolute good health; there are always such evidences of disease of the appendix as local pains or discomfort (increased on exertion), tenderness, tumour; and to these are added the frequent exacerbations of acute inflammation. Several attacks of recurrent appendicitis often induce the other condition of chronic appendicitis with relapse." As regards the conditions requiring operative interference Dr. Ball travels very much on the lines we have quoted above from Mr. Treves. "In addition to the history of repeated attacks," he writes, "eight cases have presented evidences of disease of the appendix in the presence of a tumour in the iliac fossa, varying somewhat in its position and the distinctness with which it could be felt. The tumour was more distinct the nearer the time of examination approached the subsidence of the last attack. In four cases there was no tumour, but

a tender area corresponding roughly to the point emphasised by M'Burney as of diagnostic value. [Midway between the anterior superior spine of the ilium and the umbilicus.] Once only the loin was tender. But all the patients without a distinctly palpable tumour had a history of continuous discomfort, or pain on exertion, with or without irregularity in the action of the bowels. Four patients were never entirely well after the first attack. . . . Two patients were unwilling to travel, convinced by previous experience that this pleasure would be frequently interrupted, and apprehensive of the increased severity of future attacks; six patients were unable to pursue business or laborious occupations, or to go to school without frequent abdominal discomfort. The duration of the disease had extended over a period from one to ten years, covering a number of attacks from two to twenty or thirty." In the majority of these cases the appendix was found adherent to the cæcum or to the omentum and cæcum combined, and was frequently embedded in new-formed tissue, the result of previous chronic inflammatory processes.

As regards prognosis in Dr. Ball's series there was one death, due to peritonitis on the twelfth day. The paper concludes with a table giving reference to 76 cases (including these now reported), with 75 recoveries and 1 death. So that, judging from the results now obtained, when the mode of operating is definitely laid down and careful asepsis preserved, it would appear that removal of the vermiform appendix when threatening recurrent danger is one of the recognised and most successful procedures of modern surgery.

#### VI. LITTRÉ'S HERNIA: A HISTORICAL NOTE.

So much confusion exists as to what is really meant by a "Littré's hernia" that no excuse is needed for transcribing a few sentences from Mr. Jonathan Macready's recently published "Treatise on Ruptures," the most exhaustive work dealing with the subject with which we are acquainted. Writing of Partial Enterocoele he says:—"There are no words in English, equivalent to the German Darmanhangsbruch and Darmwandbruch, to distinguish the hernia of Meckel's diverticulum from that of a part of the intestinal wall. Partial enterocoele, which was one of Richter's terms, implies a limitation from which the German name is free. But in the absence of a more exact nomenclature, the term partial enterocoele will be used here to denote protrusion of part of the intestinal wall. The first formal notice of this con-

dition is given by Lavater in his Essay on Strangulation in 1672. . . . Littré observed this condition, in 1714, in a ventral hernia above the umbilicus of a woman who died of strangulation of part of the transverse colon. He had previously, in 1700, described this rupture, but used as illustrations two cases which have been since recognised as herniæ of Meckel's diverticulum. Littré, however, raised the question of their congenital origin, and dismissed it as too improbable. Herniæ of Meckel's diverticulum are called by Professor Albert after Littré; but he was not the first to demonstrate this hernia, nor does he seem to have been aware that diverticula of the intestine can exist independently of hernia. These diverticula (Meckel's) were known to Ruysch (1698). Both of these herniæ were known to Morgagni, who, in 1741, carefully distinguished between the two, and notes a case of his own in which part of the ileum was intercepted, and in which fatal strangulation ensued. Therefore to Lavater, Littré, and Morgagni more properly belongs the discovery of the partial protrusion of the intestinal wall, and to Ruysch and Morgagni that of the herniæ of Meckel's diverticulum. Mr. Treves has followed Prof. Albert in confining the term 'Littré's hernia' to that of Meckel's diverticulum, and (transported, probably, by admiration for Richter) has called after his name the herniæ with partial protrusion of the intestine. . . . Sharing to the full the admiration for Richter which is felt by those familiar with his writings, I do not find in his discourse on 'small herniæ,' as he called them, such excellence as would justify disregard of those who preceded him."

It is to be hoped that this admirable summary of the literature will now finally determine the vexed question of proprietary rights, and perhaps this multiplicity of names will satisfy to the full those who love to grub for surgical "authorities" in the alleys and by-ways of history.

(To be continued.)

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#### THE INDIAN MEDICAL RECORD.

WE observe with pleasure that our young eastern contemporary is well into its fourth volume, and wears that comfortably thick outer garment of non-professional material which indicates prosperity. The contents of the number before us are interesting and varied. Indian medical periodicals, often depending for success upon a personality in favour of whose removal are many chances, rarely live long. There have been exceptions; and the *Indian Medical Record* bids fair to be one.

## PART IV.

### MEDICAL MISCELLANY.

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#### *Reports, Transactions, and Scientific Intelligence.*

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*Waterborne Cholera.*<sup>a</sup> By ERNEST HART, M.D., Editor of the British Medical Journal; Chairman of the National Health Society.

THE thesis which I am here to present to you is one which has a superficial air of triteness, but it is not our value to be affected by superficialities, and I hope to convince you that although well worn, the subject of the causation and prevalence of cholera is by no means threadbare. At any rate, to such threads of this well worn subject as have survived attrition, there lie attached untold thousands of lives, which it may be yours or mine at any moment to save. My thesis is that cholera death is a violent death, an unnatural death, a preventable death; that the very existence of epidemic cholera, not to say endemic cholera, is a reproach to the nation and to the community in which it exists. Being a violent death, its prevalence is due to ignorance or apathy, which, from the dimensions of a blunder, easily develops into the proportions of a gigantic crime. Cholera deaths can be prevented, ought to be prevented; and, as I firmly believe, have been largely diminished by agencies to which medical men have pointed and will, in our lifetime, and therefore before long, be so wholly prevented that Asiatic cholera like the Asiatic plague, the bubonic pest and their more modern correlative, typhus fever, will become extinct among European nations, and survive only among the records and relics of an historic shame. You will perhaps hardly be surprised, even although you may not yet be prepared to accept my view of the facts, if I begin by saying to you what I hope to end by proving, that epidemic cholera can only be diffused where the water supplies of the community are poisoned with a specific poison, which we had recently identified as the cholera bacillus. That identification I believe to be correct, but the correctness of it is not necessarily associated with the true interpretation of the historical facts of the case. It, however,

<sup>a</sup> An Address delivered before the Forty-fourth Annual Meeting of the American Medical Association, held at Milwaukee, Wis., June 7, 1893.



concur with them. The independent evidence which it supplies, strengthens our appreciation of clinical records of cholera infections and cholera outbreaks, in the past and the present. But its more or less of error or incompleteness, if such there be, does not prevent our correctly interpreting the epidemic and clinical histories which are inscribed upon the scrolls of cholera literature.

There still survive some of the old notions which half a century ago—indeed much more recently—attributed cholera to the operation of “telluric” and “meteoric” influences. “Atmospheric” and “pandemic” waves, “cholera blasts,” and other mysterious agencies, are happily now becoming things of the past, though eminent writers are still to be found who discuss the spread of cholera from the point of view of some “general influence” or “choleraic influence,” to the obscuring of other agencies which the overwhelming evidence of past epidemics has shown to be of superior and more practical importance. Even as recently as the great Russian epidemic of 1892, a clever English, though happily non-medical, writer (Hall Caine), referred to “the cholera insect which flies across the frontier,” and I have been gravely apprised from one or two quarters of “blue mists,” and “plagues of flies,” such as were observed during previous cholera epidemics.

Ideas of this sort may, perhaps, be pardonable among such unenlightened communities as last year destroyed the cholera hospitals hastily provided at Astrakhan and Saratoff to receive the victims of the advancing scourge, and cruelly maltreated the doctors who, in the midst of superstition and filth, were battling with its subtleties. But it is desirable to put aside these theories; or leave them for academic discussion, and to deal with the spread of cholera practically in the light of the accumulated evidence afforded by all the great epidemics of the past. That accumulated, and unhappily still accumulating, evidence clearly shows that cholera is a filth disease carried by dirty people to dirty places, and there spread by dirt and the use of dirty water. It is well to take every means of impressing this fact on the popular mind, and to use it as a powerful lever to push forward the war against filth already so well begun. We should aim at securing purity of our water, our air, our soil, and our habits. This achieved, cholera need no longer be feared. But it is a herculean task, and must in many countries, where filth, so to speak, is endemic, be slow of accomplishment. Even in our own country, the Augean stables requiring to be cleansed are still far too numerous. There are still far too many villagers and even townspeople throughout England who are more than satisfied with the polluted wells which have served their ancestors without bringing them to a premature grave. Water supplies are still too frequently obtained from contaminated rivers, and filth nuisances of every description are still too common amongst us. But to cherish and seriously discuss theories

respecting "cholera influences," "epidemic waves," and so forth, is to retard the work of sanitary reform, and to render it more difficult of successful and speedy accomplishment.

Ever since Snow in 1849, with the shrewdness of genius and the confidence of conviction, propounded his belief that the consumption of polluted water had had a great deal to do with the spread of cholera in England, each succeeding epidemic in this country and elsewhere has furnished overwhelming evidence of its truth. For my own part, the deductions of Snow, confirmed as they were by the elaborate investigations of Farr and Simon, were always conclusive; but since 1866, when I was personally instrumental in tracing the disastrous cholera epidemic of that year in East London to the distribution of unfiltered and polluted water from the Lee during several days by the East London Water Company, I have been convinced that specifically polluted water is not merely an occasional or adjuvant cause, but the *causa causans* of almost every great epidemic of Asiatic cholera. Further, when the use of the poisoned water has been abandoned or cut off, the epidemic has ceased.

I have closely watched each successive disastrous cholera outbreak which has occurred within the last thirty years, and the facts have practically, without exception, clearly borne out this contention, and strengthened my robust faith in it. The neglect of prompt and complete investigation of the whole circumstances of many of the foreign epidemics have rendered it impossible in some cases to learn all the facts; but where full investigations of the facts have been made by competent inquiries, the result has in almost every instance been remarkable in the confirmation afforded of the diffusion of cholera by water.

#### (A) ENGLISH EXPERIENCES.—EPIDEMIC OF 1831–33.

In England, cholera first appeared in October, 1831, and between that time and the summer of 1833 it ruthlessly ravished various parts of the kingdom. No accurate history of the epidemic exists, and there are no reliable statistics respecting it, as the present system of registering the causes of death had not been established. But in places in Great Britain having an aggregate population of less than 5,250,000, the deaths of 31,376 persons, and in Ireland of 21,171 persons, were reported through various channels to the board of health. In London alone, which then contained a population of little more than 1,500,000, there were 13,144 cholera attacks, and 6,729 deaths during eighteen months; that is to say, one person out of every 117 was attacked by the disease, whilst one in every 250 died. The epidemic filled the people with consternation, and took the medical profession by surprise. Its characteristics were unfamiliar and unaccountable, and its extension was so sudden and mysterious that it was popularly looked upon as a visitation of Provi-

dence beyond human control. According to the *Annual Register* of 1832, "the cholera left medical men as it had found them—confirmed in most opposite views, or in total ignorance as to its nature, its cure, and the causes of its origin, if endemic, or the mode of transmission if it were infectious." This, perhaps, is rather a severe criticism; for although all that we now know of its habits had not then become clear, the new disease was carefully studied, and much was learned of its characteristics. A consultative board of health was established, and the privy council circulated rules and regulations which, though far from complete, contained much sound advice. It was pointed out that the disease had special affinity for the poor, ill-fed, unhealthy parts of the population, especially those of drunken, irregular life, and those districts which were unclean, ill-ventilated and crowded. General cleanliness was enjoined, the provision of special hospitals was advised, and strict quarantine was sought to be enforced. But the most active medium of its epidemic extension—namely, water—seems to have received little thought. Whether water played a conspicuous part in the 1832 epidemic cannot be proved to demonstration, as attention was not then directed to that phase of the subject. But the general circumstances of the water supplies of the country were such as to favour the diffusion of cholera once introduced; and incidents collected a few years later by Dr. Snow<sup>a</sup> respecting the distribution of the disease in 1832 in London, Newburn, Newcastle, Nottingham, Exeter, and elsewhere, lead to the presumption that, as in subsequent epidemics, contaminated water played its part.

The sanitary condition of these islands at that period was very different from what it is at the present day. Unprotected wells, leaky cesspools, and filth nuisances of every description abounded, for the age of sanitary reform had not then commenced.

#### THE EPIDEMIC OF 1848-9.

The epidemic of 1832 set men thinking, and gave a great impetus to sanitary reform. Before the next great invasion of this country by cholera in 1848, a growing tendency towards improvement in sanitation was distinctly noticeable. In September, 1848, cases of cholera occurred in Hull, and were soon followed by outbreaks at Edinburgh, Leith, Sunderland, and elsewhere. It rapidly overran the whole country, and before it had disappeared in epidemic form towards the close of 1849, 53,293 of the English people had died from it, and 18,887 had died from diarrhœa, out of a population of some 17,564,656 living in a great variety of circumstances. It was in August, 1849, whilst this epidemic was running its course, that Snow<sup>b</sup> cast a strong light on the spread of cholera

<sup>a</sup> On the Mode of Communication of Cholera. By John Snow, M.D. 1854.

<sup>b</sup> Pamphlet dated August 29, 1849, On the Mode of Communication of Cholera. By John Snow, M.D.

by propounding his theory that a most important way in which the disease may be widely disseminated is "by the emptying of sewers into the drinking water of the community." As far as his inquiries had extended he had found that in most towns in which the malady had prevailed to an unusual extent this means of its communication had existed. He pointed out, for instance, that the joint town of Dumfries and Maxwelltown, not usually an unhealthy place, had been visited by cholera both in 1832 and at the close of 1848 with extreme severity. On the latter occasion the deaths were 317 in Dumfries, and 114 in Maxwelltown, being 431 in a population of 14,000. The inhabitants drank the water of the Nith, a river into which the sewers emptied themselves, the contents floating afterwards to and fro with the tide. Glasgow, which had been visited severely with the malady, was supplied with water from the Clyde, by means of an establishment situated a little way from the town higher up the stream, and the water was professedly filtered; but, as the Clyde is a tidal river in that part of its course, the contents of the sewers would be washed up the stream and the supply of water could not be altogether free from contamination. Again, he pointed out that in 1832 the cholera was much more prevalent in the south and east districts of London, which were supplied with water from the Thames and the Lee where those rivers were much contaminated by the sewers, than in the other parts of the metropolis, differently supplied. And this he observed was precisely what again occurred in 1849. It may here be mentioned that in 1849, and for a few years later, none of the London water companies obtained their water higher up the Thames than Vauxhall bridge, above which point the river received an ever increasing amount of sewage.

But apart from the water companies, there were a great many pumps supplied by wells in use in the metropolis. On investigating a sudden and severe outbreak of cholera in Surrey Buildings, Horsleydown, Dr. Snow found that a certain well in use by the patients had been exposed to direct pollution by the dejections of earlier patients. A very similar state of affairs was found at Albion-terrace, Wandsworth-road, where a number of cholera cases occurred almost simultaneously. In that instance there were no data for showing how the disease was probably communicated to the first patients, "but it was two or three days afterwards, when the evacuations from these patients must have entered the drains having a communication with the water supplied to all the houses, that other persons were attacked, and in two days more the disease prevailed to an alarming extent." This explanation of the outbreak was disputed at the time, but Dr. Snow pointed out that "the only special and peculiar cause connected with the great calamity which befell the inhabitants of these houses was the state of the water, which was followed by the cholera in almost every house to which it extended, whilst all the surrounding houses were quite free from the disease."



His theory of the whole epidemic of 1848-9 was that the cholera matter was brought to London by patients from Hamburg, that it was multiplied by infected persons, that the infectious sewage matter found its way partly through soil into the wells, and partly through sewers into the Thames and Lee, from which a portion of the water supply of London was derived. This theory was adversely criticised in a report by Drs. Baly and Gull to the London College of Physicians in 1850; and as Mr. N. C. McNamara has well remarked in his valuable *Treatise on Asiatic Cholera*, "these physicians well-nigh nipped this doctrine in the bud; had there been less truth in it than there is, their unqualified and positive condemnation of this theory would have utterly crushed it. As it is, their opinions have done much to retard the progress of our knowledge of the etiology of cholera."

#### EPIDEMIC OF 1853-54—THE BROAD-STREET PUMP.

Dr. Snow had not long to wait for an opportunity of putting his theory to the test. In the early part of the summer of 1854 cholera had obtained a foothold in London. One special outbreak which occurred in the parish of St. James, Westminster, during that epidemic, is almost of historic importance, as it was the first instance in which the agency of water as a disseminator of cholera was clearly demonstrated. The outbreak was a good illustration of what occurred all over this country during the earlier cholera epidemics, and of what I regret to say occurs at the present day in India and elsewhere. The first death in the parish was recorded early in August, and throughout that month a few deaths were recorded each week. But during the week ending September 2, seventy-eight deaths were registered; in the next week there were 287 deaths, in the following week there were sixty-seven, and then the mortality as quickly subsided as it had risen. But before it had disappeared at the beginning of November, some 700 fatal attacks had occurred in this single parish; that is to say, twenty-two out of every 1,000 persons living in the parish had died of the disease within three months. In the excitement of the moment various causes were assigned for this mysterious and sudden outburst. Some accused the ancient pest field in the parish, where during the Great Plague the dead had been buried by the hundred, of casting forth the disease germs buried there nearly 200 years previously. Others laid the blame on the unflushed and defectively ventilated sewers; whilst others again found sufficient cause in the extreme heat of the weather. But no satisfactory solution of the mystery presented itself until Dr. Snow was called in to examine the water supplies.

On studying the record of the deaths, Dr. Snow found that nearly all of those registered in the first week of the outbreak had taken place within a short distance of the parish pump in Broad-street; and that of seventy-three deaths in the locality around this pump, sixty-one were

found to have been of persons who used to drink the water from that particular pump. Pursuing his inquiries, he found that in a factory in the neighbourhood, where the water was always used, eighteen out of the 200 workpeople died. On the other hand, in an adjoining brewery in Broad-street, where water from that pump was never used, not one of the seventy workmen employed suffered from the disease. In another case a gentleman came from Brighton to see his brother, who was attacked by cholera in a house near the pump. On his arrival he found his brother dead, but he did not see the body. He remained only twenty minutes in the house, and after partaking of a hasty lunch, including some brandy and water (the water being from the Broad-street pump), he proceeded to Pentonville, where he was attacked by cholera during the following day, and was dead within twenty-four hours. In another case, a lady living at Hampstead was in the habit of having brought to her daily a large bottle of water from the Broad-street pump, as she had a preference for it, the water being both cool and sparkling, as sewage polluted water often is. The water was taken to her as usual on August 31; she drank of it, was seized with cholera on the next day, and died within twenty-four hours. A niece who was on a visit to this lady also drank of the water, returned to her residence in a high, healthy part of Islington, was attacked with cholera and died also. In all these cases the water was used cold and unboiled. Had it been boiled before use its peculiarly sparkling character, which constituted its attractiveness, might have been sacrificed, but its dangerous properties would have been destroyed. Many dismal incidents such as these were discovered both by Dr. Snow and by the Rev. Mr. Whitehead, who conducted an independent investigation, and showed the complicity of this well water with the outbreak. On following up the clue it was found that the pump immediately adjoined the house No. 40 Broad-street, and on the drains of that house being opened, a filthy condition of things was disclosed. There was a cesspool under a common privy within three feet of the well, and at a higher level than that of the water in the well. The walls of the cesspool were rotten, and the contents could leak into the surrounding soil. The walls of the well were also found to be rotten, and there was distinct evidence of the cesspool contents having for a long time leaked into the well. Further investigation also disclosed the fact that on August 28 a child aged five months, living in this house, was attacked with what was registered as diarrhœa, and died on September 2. The symptoms of this child's illness, however, were distinctly choleraic.

This ghastly experiment fortunately bore good fruit. The more practical of our sanitarians realised its bearings, and the purity and protection of our water supplies received more attention. The first step was the abolition in the metropolis of such dangerous shallow wells as that in Broad-street; wells which, in the words of Sir John Simon,

contained evidence that "they represented the drainage of a great manure bed."

But the water companies also needed much reform, for it was now evident that they had unconsciously been trying gigantic experiments with the lives of Londoners. In 1856 Mr.—now Sir John—Simon, who was at different times a member of the committee for scientific purposes appointed to investigate the nature and circumstances of the cholera epidemics, medical adviser to the General Board of Health, and medical officer of the Privy Council, had in his reports described very fully the relations of the water supplied by the London water companies with the epidemics of cholera. He showed in 1856 that as often as Asiatic cholera had been epidemic in London it had been observed to prevail with especial severity in certain localities on the south side of the Thames—in St. Saviour's, St. Olave's, and St. George's, Southwark, and in Bermondsey, Newington, Lambeth, Wandsworth, Camberwell, and Rotherhithe.

The water supply of these districts was divided between two companies—the Lambeth and the Southwark and Vauxhall. In 1853 the former company drew their water from the Thames at Thames Ditton, having recently, in conformity with the requirements of the Metropolis Water Act of 1852, moved their intake from Hungerford bridge; the latter company, however, still drew their supply from the Thames at Battersea. The former company, pumping from the higher and cleaner part of the river, furnished as good a water as any then distributed in London; while the latter, pumping from Battersea, was purveying perhaps the filthiest stuff ever drunk by a civilised community.

Microscopical and chemical observations proved the almost incredible foulness of the water supplied by the Southwark and Vauxhall company. It was not only brackish with the influence of each tide, but was contaminated with the outscourings of the metropolis, swarming with infusorial life, and containing unmistakable molecules of excrement. Bearing these facts in mind, the following figures, culled from the records of the cholera epidemic of 1854, are more than suggestive:—

In the 24,854 houses supplied by the Lambeth company, comprising a population of about 166,906 persons, there occurred 611 cholera deaths, being at the rate of thirty-seven amongst every 10,000 living. In the 39,726 houses supplied by the Southwark and Vauxhall Company, comprising a population of about 268,171 souls, there occurred 3,476 deaths, being at the rate of 130 out of every 10,000 living. Thus the population drinking dirty water appears to have suffered three and a half times as much mortality as the population drinking other water, although in many localities the mains of the two companies ran side by side through the streets, and the supplies of the two companies were so interlaced that it was not possible to define accurately their respective limits,

or even to say that the whole of the houses in any particular street were supplied by one particular company.

The significance of these contrasts is made more evident by a glance at the records of the preceding epidemic of 1848-9. At that time the Lambeth Company drew their water from the Thames at Hungerford Bridge, and were supplying even a worse water than the Southwark and Vauxhall Company. As already mentioned, in 1853 611 cholera deaths occurred amongst the customers of the Lambeth Company, but in 1848 1,925, or three times as many deaths, had occurred among the same set of customers, who were, however, then drinking water from a more polluted part of the river. On the other hand, the Southwark and Vauxhall Company not only did not secure a pure source of water between 1848 and 1854, but in the latter year were distributing an even stronger solution of sewage matter than during the earlier epidemic. One is justified in inferring, therefore, that of the 3,476 tenants of the Southwark and Vauxhall Company who died of cholera in 1853-4, two-thirds would have escaped if their water supply had been like that of their neighbours, and that of the much larger number—tenants of both companies—who died in 1848-9 also two-thirds would have escaped if the Metropolis Water Act of 1852, with its stringent provisions prohibiting the abstraction of water from the Thames below Teddington Lock after August 31, 1855, had but been enacted a few years earlier.

#### EPIDEMIC OF 1866.

The next invasion of this country by cholera was in 1866, and it is memorable for the terrible experiment which was unconsciously carried out by another of the London water companies, at the expense of some 4,000 lives in East London. The disease appeared in London in the last week of June, when six deaths were registered. During the succeeding weeks there were 14, 32, 346, 904, 1,053, 781, 455, 265 deaths, and then the mortality gradually declined, but before the first week of December 5,915 deaths had been registered. Of these, 4,276 occurred in the east districts of the metropolis and adjacent suburban districts of West Ham and Stratford. It was in these districts that the rapid and unexampled development of the outbreak occurred.

Early in the outbreak I was struck by its incidence on the area supplied with water by the East London Water Company, and I felt confident it could only be due to a sudden specific pollution of the water supply. Acting on behalf of a great medical journal I despatched the late Mr. J. Netten Radcliffe (who had not then become attached to the medical department of the Privy Council) to investigate the matter. At first, of course, he was met with a blank denial on the part of the water company that anything had occurred in connection with their water supply which could explain the distribution of cholera; a refusal to accept any such



denial, and a patient investigation, in which the officials gave all necessary aid, though under protest, at last made it plain that owing to changes having been made in their filtering apparatus the company had sent out for a few days unfiltered water, or water in a very partially filtered state, direct from the river Lee. Subsequent inquiry proved that just at that moment the waters of the Lee had been infected with choleraic discharges from a cottage whose sewers were connected with the river, and in which a family had come to reside who had reached Southampton infected with cholera, and were allowed to pass on after they were supposed to have recovered. The whole history of this outbreak is set out in great detail in Mr. Radcliffe's report, included in the appendix to the ninth report of the medical officer of the Privy Council. Mr. Radcliffe thus summarises the more prominent questions arising out of the outbreak :—

“The outbreak in the metropolis was one of a succession of phenomena which indicated a widespread diffusion of cholera infection in the kingdom during the month of June, 1866, and this diffusion was inseparably connected with a direct dissemination of the infection from the continent. Although facts are not forthcoming which would establish the direct dependence by transmission of the recent outbreak upon the outbreak previously occurring in Western Europe, the conclusion does not follow legitimately that no such dependence existed. . . . The earliest unquestionable cases of the outbreak took place on June 26th, 1866, on the east verge of the metropolis, upon the banks of the river Lee, and the outbreak reached its acme in the fifth week following. The mortality among the population was proportionately less from this outbreak than from any previous outbreak in the metropolis, but the disease was not less fatal in proportion to the number of persons attacked. Of the total mortality of 5,915, no fewer than 4,276 occurred in the east districts of the metropolis and adjacent suburban districts of West Ham and Stratford. It was in these districts that the disease underwent the rapid and unexampled development which gave to the outbreak such formidable proportions in the fifth and sixth weeks of its duration. The unusual development of the epidemic in the east districts as compared with the rest of London began in the week ending July 13th. In the week following the rate of increase, as compared with the previous week, was nearly seven times greater than in the rest of the metropolis, but in the subsequent week the rate of augmentation became virtually the same over the whole of London. Neither the meteorology of the period, nor altitude, nor the nature of the soil, nor density of population, nor filth, nor the state of the sewage, nor locality, affords any explanation of the peculiar localisation of the outbreak in the east districts. There is but one condition known which might become capable of propagating cholera, common to the whole area of the outbreak—namely, the water supply. The sudden and virtually

contemporaneous development of the outbreak over the entire area of prevalence indicated a medium of propagation common to, and capable of rapid diffusion over the whole area; its sudden declension indicated the temporary efficiency to this end of such a medium. The area of prevalence approximated with remarkable closeness to a particular field of water supply, and there are facts which seem to prove that this approximation was not accidental. It is known that, immediately prior to the outbreak in the east districts of the metropolis and neighbouring districts across the Lee, impure water was distributed over this field of supply, and it is highly probable that this water was charged with choleraic poison. It is submitted that these facts and inferences supply a sufficient and legitimate explanation of the great and explosive developments of cholera in the east of London and its suburbs during the recent outbreak, and it is argued in respect of a serious objection to this theory, arising out of the actual or relative immunity from cholera of certain districts and institutions supplied with the suspected cholera-infected water, that in the present state of our knowledge of the outbreak, the positive and more generally applicable facts may justly and for practical purposes warrant a conclusion apparently in contradiction with certain negative facts of much more restricted application."

During 1866 the cholera was not restricted to London, but was diffused over the whole country, and in his annual report for the year the Registrar-General showed that it had prevailed, as on former occasions, in particular fields. "The epidemic," he observed, "has been most fatal on the sea-coast in the chief ports of the kingdom. It is by no means capricious, but obeys definite laws. It never destroys the people to any extent where the water supply is pure or where the hygienic conditions are good, when the authorities adopt judicious and well-organised measures of early treatment and systematic disinfection. Those districts which are supplied with bad water, have no effective system of sewerage, have no health officer, and have no precautions in force, should immediately set their houses in order, as they are still in imminent danger." He further pointed out that, though the cholera had diffused itself over the remotest parts of the kingdom, its ravages had been restricted everywhere except where the people were living in the open violation of the laws of health. "The returns contain many examples of the efficacy of hygienic measures, and afford strong proofs of the doctrine that, if England has suffered less from cholera in the present year than the Continent, or less than England herself in former years, it is mainly due to changes which all Europe can appreciate and adopt. Among other instances the Black Country, as it is called, about Wolverhampton may be cited. The epidemics of 1849 and 1854 destroyed in five districts more than 3,000 lives, while in the year 1866 the mortality has been inconsiderable. The water was formerly impure,

and could only be obtained with difficulty in a country covered with pits and works. But the people, with commendable energy, have brought good waters from a distance, and are realising the advantages of the change in Wolverhampton, Bilston, and the other towns."

Since 1866 Asiatic cholera has not been able to extend, or even to establish itself, in England. Cases have reached our shores in 1873, 1883, and 1892, but in no instance has there been any extension beyond the first cases. Sanitary improvement throughout the country has grown apace since 1866. Taking only the last dozen years, the expenditure of upwards of £22,000,000 on water supplies, and of £12,000,000 on sewerage, throughout the country, has been officially sanctioned by the Local Government Board. Londoners, as the result in a great measure no doubt of the gigantic experiments to which they were subjected in 1854 and 1866, are supplied to-day with better filtered water than they were thirty or forty years ago. But we cannot get away from the fact that more than half of the water is drawn from the open Thames and Lee, both of which rivers are polluted by sewage above the intakes of the water companies. A few years ago it was calculated by the late Sir Francis Bolton that the sewage of upwards of 70,000 people was delivered direct into the Thames or its tributaries above the intakes of the metropolitan water companies. Supposing a case of cholera could find its way amongst those 70,000 people, and the five and a half millions supplied by the metropolitan water companies would be only separated from its dread influence by a possibly imperfect filter of sand.

#### IMMUNITY OF WATER COMPANIES IN DISTRIBUTING POISONED WATER.

I am not quite sure what view the Government now takes of the responsibility of water companies for the distribution of polluted water, but I remember very well that in 1871, when cholera was advancing rapidly through Russia, and Baltic ships with fatal cases of cholera upon them were already arriving from Cronstadt at Hull, Mr. Foster, in making an official statement in the House of Commons as to the dreaded outbreak of cholera, made a singular remark, on which I made a note at the time and wrote in remonstrance, but without effect. It was worded thus—"Water companies should be mindful that the greatest disasters produced by cholera in this country have been due to their distribution of sewage-tainted water, and every care should be used by them in good time to prevent the recurrence of any such mischief. Their customers, too, should watch them narrowly." This is the extreme application of the principle of *caveat emptor*, which would probably not now be as generally approved as it was then, but I am not aware that in any case, however flagrant, a water company has been held either severely or criminally responsible for the poisoning of its "customers." I am not aware of any legislation which provides that they are or can be held

to be liable for such malfaisance of duty. It is, of course, very different for purveyors of unsound meat or of unsound fruit or vegetables, who are duly warned, and by the provisions they are liable to heavy fines and penalties, which are frequently imposed for selling damaged goods of the kind. I cannot understand the distinction which enables water companies to slaughter on a large scale a helpless population, of whose supply of one of the first necessities of life they hold monopolies in their respective districts, while the smaller fry tradesmen and costermongers are treated with such severity.

(To be continued.)

#### INSANITY AND MENSTRUATION.

B. D. EVANS, M.D., reports (*Medical News*, Philadelphia, Vol. LXII., No. 20) cases in which attacks of insanity came on during menstrual periods, the mental condition being normal at other times. On the question of operation the author thinks—1. That in many cases of periodic insanity the exciting cause may be directly traced to the menstrual function. 2. That when the attacks of insanity are coincident with the catamenial flow, and an apparently normal mental condition prevails between the menstrual periods, it is fair to presume that the menstrual function is the cause of the attack. 3. That in such cases the removal of the ovaries is justifiable, though there be no pathologic lesion discernible; the opinion is even more forcibly indicated than in cases in which a decided pathologic condition of the ovaries exists, but in which the connection between the lesion of the ovaries and the mental perversion is doubtful.

#### CHLOROFORM NARCOSIS.

SIR B. W. RICHARDSON describes (*Asclepiad*, No. 37) experiments with Junker's Chloroform Inhaler, to which he has added a chloroform bottle graduated in minims. Sir Benjamin writes:—"Provided the administration of the narcotic vapour is well-timed, and the vapour is inhaled with the normal respiration of an adult, it is found that at the close of the first minute about twelve and a half minims of chloroform have entered the lungs, and, on account of the smallness of the dose, are probably all absorbed by the blood, and are sufficient to induce the second degree of narcotism of Snow. Continuing the inhalation of one minim of chloroform per bellows compression during the following eight inspirations, about twenty and a half minims will have been inhaled, or, allowing a loss of two and a half minims by exhalation or the faulty timing of the administration, eighteen minims will have been absorbed during the first one and a half minutes, sufficient to induce the third degree of anæsthesia, or the condition in which surgical operations are usually commenced."



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## CARNRICK'S PEPTONØIDS, IRON AND WINE.

"IT would be a difficult matter to determine whether in modern therapeutics drugs ordinarily so called, or dietetic preparations, hold the more prominent place. In the treatment of chronic debilitating diseases of modern life, at least, the latter are of the very greatest use, and they are of equal, if not greater, value in the management of the trying period of convalescence from acute diseases. CARNRICK'S BEEF PEPTONØIDS have won high approval as an excellent dietetic preparation; they are made from meat, wheat-gluten, and milk, and contain (in a partly digested or easily digestible form) nitrogenous materials of vegetable and animal origin. The distinguishing character of the preparation is the large proportion of soluble albumen and peptone present in combination with the extractives and salts which are valued for their stimulating properties.

"The new preparation submitted to us is a solution of the Peptonoids in good sherry, to which a moderate dose of pyrophosphate of iron has been added. The result is a very palatable preparation, with a decided but not too strong meaty flavour, which is readily taken, is well borne even by a very delicate stomach, and may safely be recommended in those numerous classes of cases where an alcoholic and extractive stimulant, in combination with a soluble and easily assimilated food, is indicated."—*British Medical Journal*, 11th June, 1887.

## ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—GEORGE H. KIDD, M.D., F.R.C.S.I.

General Secretary—W. THOMSON, F.R.C.S.I.

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### SECTION OF OBSTETRICS.

President—ANDREW J. HORNE, F.R.C.P.I.

Sectional Secretary—F. W. KIDD, M.D.

*Friday, May 26, 1893.*

The PRESIDENT in the Chair.

#### *Ovarian Cystoma.*

The SECRETARY read for Dr. C. YELVERTON PEARSON notes on an Ovarian Tumour.

E. F., aged forty-three. Admitted September 23rd, 1892. Single.

*Previous health.*—Very healthy and active up to Christmas, 1891, then got occasional vomiting, but noticed nothing else till Easter, then got an attack of threatened obstruction and pain in lower part of abdomen. Relieved with medicine and enema, but noticed after this that there was swelling in lower part of abdomen; this increased especially during month previous to admission.

*Family history.*—Father alive and healthy (sixty-nine). Mother rheumatic (seventy). One brother died of heart disease; one sister died of consumption. One sister living (thirty-five), in good health.

*Condition on admission.*—Swelling in hypogastric, umbilical, right and left inguinal and lumbar regions. It is asymmetrical. Has indications on surface indicating division into 3 principal lobes. Dull all over; fluctuating. Reaches as high as cartilages of ribs at left side, and midway between umbilicus and ribs on right. Has no bowel or bladder symptoms at present. Menses fairly regular, but scanty of late. No dysmenorrhœa. No leucorrhœa.

*Operation.*—Lasted three-quarters of an hour.

Incision 3 inches. Anterior portion of tumour smooth and free from adhesions. On tapping cyst proved to be unilocular, but the depressions on its surface correspond to remains of septa internally indicating previous sub-division. On drawing the cyst forwards it was found to

be extensively adherent to the omentum and small intestine. The omentum was ligatured in three places and adherent portion removed. Some of the adhesions were separated directly from the intestine; but one portion was so firmly adherent that the cyst wall was split with scissors and left attached to bowel, but was afterwards carefully removed subsequently to the removal of the tumour. The left ovary being unhealthy was also removed.

Operation, September 28th, at 12 30 p.m. After operation temperature was  $97^{\circ}$ ; rose to  $99.4^{\circ}$  during the night; normal in the morning; varied between  $97.2^{\circ}$  and  $99.4^{\circ}$  during the six succeeding days. The suction syringe was used at 5 p.m. on day of operation (very little discharge); this was repeated two or three times in the 24 hours, up to fifth day, when drainage tube was removed. Catheter passed up to sixth day. Vomited frequently during the first two nights, and slept only about two hours each night.

*Progress.*—Drainage tube removed on fifth day. Stitches removed and plaster applied on tenth day (October 8th).

#### *Ovarian Tumours.*

DR. A. J. SMITH exhibited specimens of ovarian tumours. He said the first specimen he wished to show was a simple ovarian tumour. He removed it without any difficulty. It was a simple unilocular tumour. The second specimen was one of great interest. The patient complained of great pain in the right inguinal region, and he diagnosticated a small tumour in the right broad ligament. He operated and removed a beautiful specimen of hydrops folliculorum in October, 1892. At the same time he examined the left ovary and noticed that it was small and felt normal. However, the pain which the patient complained of was never entirely removed, and a month after the operation it became of a boring character and was referred to the original place. However, as a rule, after the removal of the ovaries the patient often complains of pain which gradually wears away, but in this case the pain became worse. She came up to him about a week ago, and he had the assistance of both the President and Mr. McArdle in examining her. They found a slight swelling and some tenderness in the right broad ligament in the seat of the old pedicle. The left ovary seemed fairly normal, but was enlarged since the previous examination. They decided to explore, and on looking in were astonished to find the left ovary enlarged and having a cystic appearance. Having removed the ovary, they turned to the pedicle, which was left, and they found that it had become adherent to the intestine. They endeavoured to separate it, but found that the adhesion of the pedicle to the anterior wall of the intestine was so great that they would have to resect the intestine, so they determined to leave it alone. Since the second ovary was removed the pain has left, but



whether it was due to the ovary or not time can only tell. The patient is doing well, without any rise of temperature, and no intestinal obstruction.

### *Exhibitions.*

DR. MORE MADDEN exhibited—1stly. An enormous uterine tumour, together with gravid uterus, removed by Muller Porro's operation, and described in a paper read by the operator at the last meeting of the Academy. 2ndly. He also exhibited a large submucous uterine fibroid recently removed by enucleation in which it was necessary to deliver tumour with the midwifery forceps. Patient made a good recovery. 3rdly were shown the ovaries and tubes recently removed, as a result of hæmorrhage from fibromyoma. 4thly. Dr. More Madden also exhibited an exceptionally large multilocular ovarian tumour removed from a patient in the Mater Misericordiæ Hospital.

The following was the history of the case:—The patient is thirty years of age, unmarried, has always worked hard, the usual occupations of a farmer's daughter. First noticed tumour 15 months since (January, 1892). It began in the left ovarian region, and grew rapidly. Confined to bed since Feb. 14, 1892. On admission she was extremely prostrate, very emaciated, the abdomen was enormously distended. Previous to operation a small quantity of fluid was withdrawn for examination. On the 21st March an incision was made in the abdomen, and the tumour, which had extensive adhesions, was removed. The tumour, which was chiefly solid, weighed 68 lbs. The sutures were removed on the 8th day, the wound healed by first intention. After operation the patient did well. There was slight disturbance for some hours on the 3rd day owing to flatus, which was relieved. She is now convalescent, and has returned to her home.

DR. SMITH inquired how long the tumour was growing, and why the patient allowed the tumour to grow so large without operation.

DR. MORE MADDEN said the patient first complained in February, 1892, and the tumour was removed in April, 1893.

### *Paper on a Successful Case of Porro's Operation.*

DR. COLAHAN (Galway) said the case was one of pregnancy occurring in a rachitic dwarf, in which it became necessary to perform abdominal section, delivery being impossible "per vias naturales." Porro's Cæsarean hysterectomy was the proceeding adopted to complete delivery, and was successful in saving both the mother and her child. The operation is still rare in this country. Dr. Bagot described the first successful case in April, 1891, Dr. M. Madden the second successful case 28th May, 1893. This is the third case, and the first, I believe, where mother and child were saved. The infrequency of abdominal section for obstetric purposes in this country is remarkable, for Cæsarean sections and the

Porro Cæsarean operations are rapidly growing in favour in England, on the Continent, and in America. Is it that cases are not forthcoming suitable for these proceedings? or is it that we still believe that the instrumental death of the child gives greater hope for the safety of the mother, and that we refuse to see, except in a few exceptional cases, conditions warranting us in advising or undertaking abdominal section?

This little patient (photograph shown), B. C., a rachitic dwarf, about forty years old, 39 inches high, unmarried; menstruated last July, 1891; became pregnant August, 1891; admitted to Lying-in Hospital Saturday, 14th May, 1892. On 15th May labour, at term, set in. On examination, impossible to reach os, which was drawn high up; promontory protruded sharply, leaving conjugate under 2 inches. Pains irregular and few. Ordered an opiate and sent to infirmary for operation.

Operation performed on the 16th May, 1892. Professor Lynham administered the anæsthetic, which was the A. C. E. mixture, and Dr. Lyden rendered me invaluable assistance at each stage of the proceeding. The operation lasted under 25 minutes, and although there was some vomiting, yet, on the whole, the little patient bore the operation remarkably well. Milk, Brand's beef jelly, and iced champagne were given regularly for the first few days. The temperature never rose above 101·4°. This on the 3rd day, never afterwards. On the 7th day a rigor, with enormous distension and tympanites, set in, but the prompt use by the nurse of O'Beirne's tube, and afterwards an enema, averted what appeared an impending attack of peritonitis. On the 18th day the pedicle came away, and at end of 3rd week the patient was moving about.

Why did I adopt Porro's method here instead of Cæsarean section with uterine sutures? Well, statistics are not usually reliable aids, yet when we are in doubt or anxiety they often sway us one way or the other. In my hurried search I gathered—1st, that in a general way, at least, Porro's operation is the more rapid and easier proceeding; 2nd, I fancied I learned that a true Porro's operation—with a sound uterus and a viable foetus, carefully done and at a proper period—is at least as successful as a Sanger or Cameron Cæsarean section. Lastly, looking at the circumstances and surroundings of this little patient, and learning from the experience of others that these little people, having escaped from the dangers of one pregnancy, frequently get entangled in a second, I saw no reason why I should hesitate to deprive her of the chance of such a calamity.

DR. SMYLY said it was a matter of surprise to him that in this country of all the countries in the world Porro's operation should be such a rare thing. There were two things which probably accounted for it. One was the distrust of the people in this country to be operated on. The other was that many practitioners would rather let their patients die under their own care or send them over to England. He did not agree

with Dr. Colahan that the result of Porro's operation were equally good as compared with Cæsarean section. However, it was not a question that they could dogmatise upon, as the really bad cases fell to Porro. Still the mortality from Cæsarean section was only about 5 per cent., and he did not think that Porro could show as good a result as that. With some of the details of the operation he did not quite agree, but the question of greatest importance was whether they should sterilise the woman or not. In woman the strongest desire is to bear children, and it was his strong conviction that a woman should not be sterilised except it is by her own choice. One does not sterilise his patients in doing Cæsarean section.

DR. A. J. SMITH said the point to which he would specially refer was, whether a woman should be sterilised or not in doing Cæsarean section. The only case he knew of was one in which Dr. Macan performed Cæsarean section on a little dwarf, with good results to both mother and child. However, the little creature was frail, both morally and otherwise, and she became pregnant again. They were about to perform Cæsarean section again, but in the middle of the night the muscular wall of the uterus in the line of the old sutures gave way, and the patient died from collapse. He always felt that it would have been a great blessing to her if she had been sterilised. Whether it should be done by Porro's operation, or merely ligature of the tubes and ovaries, he thought that it would be a great benefit to society at large as well as to such people themselves if they had been sterilized.

DR. MORE MADDEN thought that it would add to the advantages of the Academy if their fellow-members throughout the country would give them their experiences oftener. He thought the operation which Dr. Colahan had done reflected great credit on his surgical skill. He ventured to think, however, that though the operation was so successful, still it might possibly have been as well had he performed the Cæsarean operation—and more especially since the mortality of Porro's operation has been so very high as compared with Cæsarean section. In cases of rachitic pelvis the Cæsarean section has been eminently successful in Scotland, and in the hands of Cameron there have been only about two deaths in twenty operations, while the mortality of Porro's operation has, according to Sir Spencer Wells, been about 56 per cent. Therefore he thought the Cæsarean section safer for the women in whose interest it should be performed.

#### *The After Discussion.*

In the discussion that followed, Dr. COLAHAN, after thanking the President and other members for their very flattering remarks, stated that it was the first time, as far as he knew, that the operation was performed in the West of Ireland—and not anticipating such an under-

taking, he found himself without a *serre-nœud* at the last moment, and although the use of them was quite successful, yet he would not for choice use silver sutures for the abdominal incision.

In reply to Dr. Smyly, he said he quite agreed that there were many women who would not wish to be sterilised, and who would wish to have children in the future, but he was quite certain that this particular woman did not want to have future children, nor was it desirable that she should.

In reply to Dr. Smith, he said he had Dr. Macan's case at the Rotunda in his mind when he alluded to these dwarfs becoming pregnant a second time. Had Dr. Macan performed Porro's operation upon that patient instead of Cæsarean section, she would now be alive. Dr. Colahan was not aware, until Dr. Smith mentioned it now, that in Dr. Macan's case the woman died of rupture of the uterus at the site of the former uterine section.

In reply to Dr. More Madden, Dr. Colahan said that, with all respect, he coincided with Mr. Tait's opinion that Porro's operation, if properly done and at the proper time, is a most successful operation, and the mortality a mere bagatelle. Nothing could be more misleading or unfair than the statistics of Porro's operation. Dr. Colahan believed that Porro intended that his operation should be for the purpose of saving the mother and child, and should be done on a sound uterus and a viable fœtus. He further believed that Mr. Godson's classification of Porro's operation should be followed in collecting statistics; in this way the true Porro's operation would not be confounded with operations done for a uterine myomata, or for removing a child from a ruptured uterus where the fatal result is almost certain. If the true Cæsarean section was mixed up in this way it would soon fall into disrepute. In conclusion, he did not think that it was as yet very intelligible why the tedious processes of suturing the uterus and then sterilising that organ should be preferred to a true Porro's operation.

DR. W. J. SMYLY read portion of the Report of the Rotunda Lying-in Hospital for three years, 1889-92. Owing to the late hour he could not finish it, so it was proposed and carried unanimously that the Report should be printed and copies sent to the members (with the permission of the General Council), and that the discussion should take place at an extra meeting of the Section, the date of which was to be arranged hereafter.

The Section then adjourned.



## SANITARY AND METEOROLOGICAL NOTES.

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### VITAL STATISTICS

*For four Weeks ending Saturday, June 17, 1893.*

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

| TOWNS     | Weeks ending |         |          |          | TOWNS       | Weeks ending |         |          |          |
|-----------|--------------|---------|----------|----------|-------------|--------------|---------|----------|----------|
|           | May 27.      | June 3. | June 10. | June 17. |             | May 27.      | June 3. | June 10. | June 17. |
| Armagh -  | 49.1         | 21.0    | 21.0     | 14.0     | Limerick -  | 16.8         | 19.6    | 11.2     | 19.6     |
| Belfast - | 21.6         | 21.6    | 20.5     | 26.9     | Lisburn -   | 46.8         | 21.3    | 8.5      | 17.0     |
| Cork -    | 22.1         | 20.8    | 17.3     | 22.8     | Londonderry | 6.3          | 17.3    | 17.3     | 15.7     |
| Drogheda  | 26.4         | 8.8     | 17.6     | 4.4      | Lurgan -    | 9.1          | 9.1     | 13.7     | 22.8     |
| Dublin -  | 24.5         | 26.3    | 22.4     | 27.1     | Newry -     | 24.1         | 12.1    | 12.1     | 4.0      |
| Dundalk - | 25.1         | 25.1    | 25.1     | 12.6     | Sligo -     | 15.2         | 25.4    | 5.1      | 15.2     |
| Galway -  | 18.9         | 11.3    | 0.0      | 30.2     | Waterford - | 30.0         | 12.5    | 22.5     | 12.5     |
| Kilkenny  | 28.3         | 14.2    | 28.3     | 23.6     | Wexford -   | 36.1         | 4.5     | 27.1     | 13.5     |

In the week ending Saturday, May 27, 1893, the mortality in thirty-three large English towns, including London (in which the rate was 17.7), was equal to an average annual death-rate of 17.5 per 1,000 persons living. The average rate for eight principal towns of Scotland was 20.3 per 1,000. In Glasgow the rate was 23.2, and in Edinburgh it was 19.6.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 22.9 per 1,000 of the population, according to the Census of 1891.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2.0 per 1,000, the rates varying from 0.0 in ten of the districts to 4.7 in Kilkenny—the 6 deaths from all

causes registered in that district comprising 1 from diarrhœa. Among the 110 deaths from all causes registered in Belfast are 5 from measles, 1 from whooping-cough, 2 from diphtheria, 2 from simple continued fever, 1 from enteric fever, and 3 from diarrhœa. The 32 deaths in Cork comprise 1 from measles, 1 from scarlatina, and 1 from enteric fever.

In the Dublin Registration District the registered births during the week amounted to 196—91 boys and 105 girls; and the registered deaths to 168—79 males and 89 females.

The deaths, which are 3 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 25·1 in every 1,000 of the population. Omitting the deaths (numbering 4) of persons admitted into public institutions from localities outside the district, the rate was 24·5 per 1,000. During the first twenty-one weeks of the current year the death-rate averaged 27·2, and was 4·1 over the mean rate in the corresponding period of the ten years 1883–1892.

Twenty-four deaths from zymotic diseases were registered, being 4 over the number for the preceding week, and also 4 above the average for the 21st week of the last ten years. They comprise 5 from measles, 2 from scarlet fever (scarlatina), 2 from influenza and its complications, 5 from whooping-cough, 3 from enteric fever, and 3 from erysipelas.

The number of cases of enteric fever admitted to hospital was 7, being 4 under the admissions for the preceding week. Seven enteric fever patients were discharged, 1 died, and 32 remained under treatment on Saturday, being 1 under the number in hospital on Saturday, May 20.

The number of cases of scarlatina admitted to hospital was 6, being 7 under the admissions for the preceding week: 17 patients were discharged, and 69 remained under treatment on Saturday, being 11 under the number in hospital at the close of the preceding week.

The hospital admissions for the week included, also, 6 cases of measles (an increase of 1 as compared with the admissions for the preceding week), but no cases of typhus were received. Twenty cases of the former and 3 of the latter disease remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered was 25, being 2 below the average for the corresponding week of the last ten years, and 3 under the number for the week ended May 20. The 25 deaths consist of 16 from bronchitis and 9 from pneumonia or inflammation of the lungs.

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In the week ending Saturday, June 3, the mortality in thirty-three large English towns, including London (in which the rate was 17·6), was equal to an average annual death-rate of 17·9 per 1,000 persons

living. The average rate for eight principal towns of Scotland was 19·2 per 1,000. In Glasgow the rate was 21·6, and in Edinburgh it was 15·7.

The average annual death-rate in the sixteen principal town districts of Ireland was 22·0 per 1,000 of the population, according to the Census of 1891.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 1·3 per 1,000, the rates varying from 0·0 in twelve of the districts to 4·2 in Dundalk—the 6 deaths from all causes registered in that district comprising 1 from measles. Among the 110 deaths from all causes registered in Belfast are 2 from measles, 2 from whooping-cough, 1 from enteric fever, and 3 from diarrhœa.

In the Dublin Registration District the registered births amounted to 199—97 boys and 102 girls; and the registered deaths to 183—101 males and 82 females.

The deaths, which are 22 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 27·3 in every 1,000 of the population. Omitting the deaths (numbering 7) of persons admitted into public institutions from localities outside the district, the rate was 26·3 per 1,000. During the first twenty-two weeks of the current year the death-rate averaged 27·2, and was 3·7 under the mean rate in the corresponding period of the ten years 1883–1892.

Twenty-five deaths from zymotic diseases were registered, being 7 in excess of the average for the corresponding week of the last ten years, and 1 over the number for the week ended May 27. They comprise 4 from measles, 1 from typhus, 4 from influenza and its complications, 2 from whooping-cough, 2 from enteric fever, 1 from diarrhœa, 3 from dysentery, and 1 from erysipelas.

Only 6 cases of enteric fever were admitted to hospital, being 1 under the admissions for the preceding week, and 5 under the number for the week ended May 20. Seven enteric fever patients were discharged and 31 remained under treatment on Saturday, being 1 under the number in hospital at the close of the preceding week.

Six cases of scarlatina were admitted to hospital, being equal to the number of admissions for the preceding week: 12 patients were discharged and 63 remained under treatment on Saturday, being 6 under the number in hospital on Saturday, May 27.

The hospital admissions for the week included, also, 10 cases of measles (against 6 for the preceding week), but no cases of typhus were received. Twenty-three cases of the former and only 1 of the latter disease remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered was 25, being equal to the number for the preceding week, but 3 under the average for the 22nd week of the last ten years. The 25

deaths comprise 9 from bronchitis and 14 from pneumonia or inflammation of the lungs.

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In the week ending Saturday, June 10, the mortality in thirty-three large English towns, including London (in which the rate was 18·1), was equal to an average annual death-rate of 18·2 per 1,000 persons living. The average rate for eight principal towns of Scotland was 21·2 per 1,000. In Glasgow the rate was 22·4, and in Edinburgh it was 18·1.

The average annual death-rate represented by the deaths registered in the sixteen principal town districts of Ireland was 19·8 per 1,000 of the population, based on the Census of 1891.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 1·9 per 1,000, the rates varying from 0·0 in eleven of the districts to 5·0 in Waterford—the 9 deaths from all causes registered in that district comprising 2 from scarlatina—both in the same family. Among the 104 deaths from all causes registered in Belfast are 9 from measles, 1 from scarlatina, 1 from whooping-cough, 2 from diphtheria, 1 from enteric fever, and 6 from diarrhœa.

In the Dublin Registration District the registered births amounted to 194—91 boys and 103 girls; and the registered deaths to 159—76 males and 83 females.

The deaths, which are 8 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 23·7 in every 1,000 of the population. Omitting the deaths (numbering 9) of persons admitted into public institutions from localities outside the district, the rate was 22·4 per 1,000. During the first twenty-three weeks of the current year the death-rate averaged 27·0, and was 3·7 under the mean rate in the corresponding period of the ten years 1883–1892.

Only 13 deaths from zymotic diseases were registered, being 8 below the average for the corresponding week of the last ten years, and 12 under the number for the week ended June 3. They comprise 5 from measles, 1 from influenza, 2 from whooping-cough, 1 from simple continued fever, and 1 from enteric fever.

Seven cases of enteric fever were admitted to hospital, being 1 over the admissions for the preceding week, and equal to the number for the week ended May 27. Two enteric fever patients were discharged, and 36 remained under treatment on Saturday, being 5 over the number in hospital at the close of the preceding week.

Ten cases of scarlatina were admitted to hospital, being 4 in excess of the admissions for the preceding week: 3 patients were discharged, and 70 remained under treatment on Saturday, being 7 above the number in hospital on Saturday, June 3.



The hospital admissions for the week included, also, 2 cases of measles and 3 of typhus. In the preceding week 10 cases of measles were admitted, but no cases of typhus were received. Nineteen cases of the former and 4 of the latter disease remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered was 23, being 2 under the number for the preceding week, and 6 below the average for the 23rd week of the last ten years. The 23 deaths comprise 10 from bronchitis, 4 from pneumonia or inflammation of the lungs, and 3 from pleurisy.

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In the week ending Saturday, June 17, the mortality in thirty-three large English towns, including London (in which the rate was 19·1), was equal to an average annual death-rate of 19·4 per 1,000 persons living. The average rate for eight principal towns of Scotland was 20·2 per 1,000. In Glasgow the rate was 23·9, and in Edinburgh it was 17·1.

The average annual death-rate in the sixteen principal town districts of Ireland was 24·2 per 1,000 of the population, according to the Census of 1891.

The deaths from the principal zymotic diseases registered in the sixteen districts were equal to an annual rate of 3·0 per 1,000, the rates varying from 0·0 in seven of the districts to 7·0 in Armagh—1 of the 2 deaths from all causes registered in that district being from scarlatina. Among the 137 deaths from all causes registered in Belfast are 9 from measles, 3 from whooping-cough, 1 from diphtheria, 3 from enteric fever, and 7 from diarrhœa. The 5 deaths in Waterford comprise 2 from measles and 1 from whooping-cough.

In the Dublin Registration District the registered births amounted to 203—108 boys and 95 girls; and the registered deaths to 189—100 males and 89 females.

The deaths, which are 19 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 28·2 in every 1,000 of the population. Omitting the deaths (numbering 7) of persons admitted into public institutions from localities outside the district, the rate was 27·1 per 1,000. During the first twenty-four weeks of the current year the death-rate averaged 27·1, and was 3·4 under the mean rate in the corresponding period of the ten years, 1883—1892.

Twenty-six deaths from zymotic diseases were registered, being 6 above the average for the corresponding week of the last ten years, and 13 over the low number for the week ended June 10. They comprise 4 from measles, 2 from scarlet fever (scarlatina), 1 from influenza, 9 from

whooping-cough, 3 from enteric fever, 2 from diarrhœa, 1 from dysentery, and 1 from erysipelas.

Ten cases of enteric fever were admitted to hospital, being 3 over the admissions for the preceding week, and 4 over the number for the week ended June 3. Four enteric fever patients were discharged, 1 died, and 41 remained under treatment on Saturday, being 5 above the number in hospital at the close of the preceding week.

Nineteen cases of scarlatina were admitted to hospital, being 9 in excess of the admissions for the preceding week. Six patients were discharged, 2 died, and 81 remained under treatment on Saturday, being 11 over the number in hospital on Saturday, June 10.

The hospital admissions for the week included, also, 8 cases of measles and 3 of typhus. Nineteen cases of the former and 4 of the latter disease remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered was 27, being 4 over the number for the preceding week, and 1 above the average for the 24th week of the last ten years. The 27 deaths comprise 12 from bronchitis and 9 from pneumonia or inflammation of the lungs.

#### VITAL STATISTICS

*For four Weeks ending Saturday, July 15, 1893.*

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000 :—

| TOWNS     | Weeks ending |        |        |         | TOWNS       | Weeks ending |        |        |         |
|-----------|--------------|--------|--------|---------|-------------|--------------|--------|--------|---------|
|           | June 24      | July 1 | July 8 | July 15 |             | June 24      | July 1 | July 8 | July 15 |
| Armagh -  | 35.1         | 28.0   | 28.0   | 14.0    | Limerick -  | 14.0         | 19.6   | 19.6   | 19.6    |
| Belfast - | 26.9         | 26.7   | 32.1   | 36.2    | Lisburn -   | 17.0         | 8.5    | 4.3    | 29.8    |
| Cork -    | 15.2         | 15.9   | 21.5   | 24.9    | Londonderry | 14.1         | 12.6   | 4.7    | 29.8    |
| Drogheda  | 35.1         | 43.9   | 4.4    | 8.8     | Lurgan -    | 13.7         | 4.6    | 36.5   | 13.7    |
| Dublin -  | 23.4         | 29.5   | 23.9   | 26.5    | Newry -     | 24.1         | 12.1   | 8.1    | 16.1    |
| Dundalk - | 16.8         | 12.6   | 25.1   | 20.9    | Sligo -     | 0.0          | 0.0    | 25.4   | 60.9    |
| Galway -  | 22.7         | 34.0   | 15.1   | 7.6     | Waterford - | 35.0         | 27.5   | 35.0   | 40.0    |
| Kilkenny  | 14.2         | 9.4    | 23.6   | 9.4     | Wexford -   | 27.1         | 18.1   | 13.5   | 22.6    |

In the week ending Saturday, June 24, 1893, the mortality in thirty-three large English towns, including London (in which the rate was 22·6), was equal to an average annual death-rate of 22·1 per 1,000 persons living. The average rate for eight principal towns of Scotland was 22·0 per 1,000. In Glasgow the rate was 23·7, and in Edinburgh it was 17·7.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 22·9 per 1,000 of the population, according to the Census of 1891.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 3·4 per 1,000, the rates varying from 0·0 in nine of the districts to 10·0 in Waterford—the 14 deaths from all causes registered in that district comprising 4 from measles. Among the 137 deaths from all causes registered in Belfast are 7 from measles, 1 from scarlatina, 1 from typhus, 4 from whooping-cough, 1 from diphtheria, 2 from enteric fever, and 15 from diarrhœa.

In the Dublin Registration District the registered births amounted to 208—97 boys and 111 girls; and the registered deaths to 170—83 males and 87 females.

The deaths, which are 10 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 25·4 in every 1,000 of the population. Omitting the deaths (numbering 13) of persons admitted into public institutions from localities outside the district, the rate was 23·4 per 1,000. During the first twenty-five weeks of the current year the death-rate averaged 27·0, and was 3·2 under the mean rate in the corresponding period of the ten years 1883–1892.

Thirty-one deaths from zymotic diseases were registered, being 5 over the number for the preceding week, and 12 in excess of the average for the 25th week of the last ten years. They comprise 6 from measles, 1 from scarlet fever (scarlatina), 3 from influenza and its complications, 1 from whooping-cough, 3 from enteric fever, 9 from diarrhœa, and 1 from erysipelas.

The number of cases of enteric fever admitted to hospital was 7, being 3 under the admissions for the preceding week, and equal to the number for the week ended June 10. Nine enteric fever patients were discharged, 1 patient died, and 38 cases remained under treatment on Saturday, being 3 under the number in hospital on Saturday, June 17.

Only 7 cases of scarlatina were admitted to hospital, against 19 admissions in the preceding week: 18 patients were discharged, and 70 remained under treatment on Saturday, being 11 under the number in hospital at the close of the preceding week.

The hospital admissions for the week included, also, 2 cases of measles

and 1 case of typhus: 15 cases of the former and 5 of the latter disease remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered was 22, being 4 below the average for the corresponding week of the last ten years, and 5 under the number for the week ended June 17. The 22 deaths comprise 12 from bronchitis and 8 from pneumonia or inflammation of the lungs.

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In the week ending Saturday, July 1, the mortality in thirty-three large English towns, including London (in which the rate was 22·2), was equal to an average annual death-rate of 22·7 per 1,000 persons living. The average rate for eight principal towns of Scotland was 21·5 per 1,000. In Glasgow the rate was 22·8, and in Edinburgh it was 22·0.

The average annual death-rate in the sixteen principal town districts of Ireland was 24·9 per 1,000 of the population, according to the Census of 1891.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 5·0 per 1,000, the rates varying from 0·0 in ten of the districts to 8·9 in Belfast—the 136 deaths from all causes registered in that district comprising 7 from measles, 7 from whooping-cough, 2 from diphtheria, 2 from enteric fever, and 27 from diarrhoea. The 11 deaths from all causes registered in Waterford comprise 3 from measles, being 1 under the number of deaths from that cause registered in the preceding week.

In the Dublin Registration District the registered births amounted to 216—109 boys and 107 girls; and the registered deaths to 206—98 males and 108 females.

The deaths, which are 35 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 30·7 in every 1,000 of the population. Omitting the deaths (numbering 8) of persons admitted into public institutions from localities outside the district, the rate was 29·5 per 1,100. During the first twenty-six weeks of the current year the death-rate averaged 27·2, and was 2·8 under the mean rate in the corresponding period of the ten years 1883-1892.

Forty-five deaths from zymotic diseases were registered, being 23 in excess of the average for the corresponding week of the last ten years, and 14 over the number for the week ended June 24. They comprise 2 from influenza and its complications, 7 from whooping-cough, 1 from diphtheria, 1 from ill-defined fever, 4 from enteric fever, 22 (including 19 deaths of children under 5 years of age) from diarrhoea, and 1 from erysipelas.

Only 5 cases of enteric fever were admitted to hospital, being 2 under the admissions for the preceding week, and 5 under the number for the week ended June 17. Eleven enteric fever patients were dis-



charged, 2 died, and 30 remained under treatment on Saturday, being 8 under the number in hospital at the close of the preceding week.

Eleven cases of scarlatina were admitted to hospital, being 4 over the admissions for the preceding week, but 8 under the number for the week ended June 17. Seventeen scarlatina patients were discharged, and 64 remained under treatment on Saturday, being 6 under the number in hospital at the close of the preceding week.

The hospital admissions for the week included, also, 7 cases of measles: 16 cases of that disease remained under treatment in hospital on Saturday.

Thirty-one deaths from diseases of the respiratory system were registered, being 9 over the number for the preceding week and 7 in excess of the average for the 26th week of the last ten years. They comprise 12 from bronchitis and 9 from pneumonia or inflammation of the lungs.

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In the week ending Saturday, July 8, the mortality in thirty-three large English towns, including London (in which the rate was 22·3), was equal to an average annual death-rate of 23·8 per 1,000 persons living. The average rate for eight principal towns of Scotland was 21·5 per 1,000. In Glasgow the rate was 25·2, and in Edinburgh it was 17·3.

The average annual death-rate represented by the deaths registered in the sixteen principal town districts of Ireland was 24·7 per 1,000 of the population, based on the Census of 1891.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 5·6 per 1,000, the rates varying from 0·0 in nine of the districts to 15·0 in Waterford—the 14 deaths from all causes registered in that district comprising 6 from measles, being 3 over the number of deaths from that disease registered in that city during the preceding week. Among the 163 deaths from all causes registered in Belfast are 6 from measles, 2 from whooping-cough, 4 from enteric fever, and 40 from diarrhoea. The 6 deaths in Dundalk comprise 1 from measles, 1 from diphtheria, and 1 from diarrhoea. The Registrar of Londonderry No. 2 District remarks: "Two cases of small-pox were reported to me early this week—Patients were removed to new City Infectious Diseases Hospital. No other cases."

In the Dublin Registration District the registered births amounted to 166—81 boys and 85 girls; and the registered deaths to 165—67 males and 98 females.

The deaths, which are 15 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 24·6 in every 1,000 of the population. Omitting the deaths (numbering 5) of persons admitted into public institutions from localities outside the district, the rate was 23·9 per 1,000. During the first twenty-seven weeks of the

current year the death-rate averaged 27·1, and was 2·6 under the mean rate in the corresponding period of the ten years 1883–1892.

The number of deaths from zymotic diseases registered was 43, being 2 under the number for the preceding week, but 21 over the average for the 27th week of the last ten years. The 43 deaths comprise 6 from measles, 1 from scarlet fever (scarlatina), 3 from influenza and its complications, 2 from whooping-cough, 3 from enteric fever, 22 from diarrhoea (against an average of 3 for the corresponding week of the last ten years), and 1 from erysipelas. Eighteen of the 22 deaths from diarrhoea were of infants under 1 year old.

Eight cases of enteric fever were admitted to hospital against 5 for the preceding week. Seven enteric fever patients were discharged, and 31 remained under treatment on Saturday, being 1 over the number in hospital at the close of the preceding week.

The number of cases of scarlatina admitted to hospital was 9, being 2 under the admissions for the preceding week: 20 patients were discharged, and 53 remained under treatment on Saturday, being 11 under the number in hospital on Saturday, July 1.

The hospital admissions for the week included, also, 1 case of typhus; but there were not among the admissions any cases of measles, 7 cases of which disease had been admitted during the week ended July 1. Five cases of typhus and 12 of measles remained under treatment in hospital on Saturday.

Deaths from diseases of the respiratory system, which had risen from 22 for the week ended June 21 to 31 for the following week, fell again to 22, but this number is 1 in excess of the average for the corresponding week of the last ten years. The 22 deaths comprise 14 from bronchitis and 7 from pneumonia or inflammation of the lungs.

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In the week ending Saturday, July 15, the mortality in thirty-three large English towns, including London (in which the rate was 22·9), was equal to an average annual death-rate of 24·8 per 1,000 persons living. The average rate for eight principal towns of Scotland was 21·9 per 1,000. In Glasgow the rate was 23·4, and in Edinburgh it was 18·5.

The average annual death-rate in the sixteen principal town districts of Ireland was 28·6 per 1,000 of the population, according to the Census of 1891.

The deaths from the principal zymotic diseases registered in the sixteen districts were equal to an annual rate of 7·1 per 1,000, the rates varying from 0·0 in eight of the districts to 20·0 in Waterford—the 16 deaths from all causes registered in that district comprising 6 from measles (being equal to the number of deaths from that disease registered in Waterford during the preceding week), 1 from enteric fever, and 1 from

diarrhœa. Among the 184 deaths from all causes registered in Belfast are 5 from measles, 2 from scarlatina, 7 from whooping-cough, 3 from enteric fever, and 53 from diarrhœa. The 7 deaths in Lisburn comprise 1 from enteric fever and 1 from diarrhœa.

In the Dublin Registration District the registered births amounted to 195—102 boys and 93 girls; and the registered deaths to 182—89 males and 93 females.

The deaths, which are 34 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 27·1 in every 1,000 of the population. Omitting the deaths (numbering 4) of persons admitted into public institutions from localities outside the district, the rate was 26·5 per 1,000. During the first twenty-eight weeks of the current year the death-rate averaged 27·1, and was 2·4 under the mean rate in the corresponding period of the ten years 1883—1892.

Forty-six deaths from zymotic diseases were registered, being 3 over the number for the preceding week, and 26 over the average for the 28th week of the last ten years. They comprise 2 from measles, 1 from typhus, 2 from influenza and its complications, 2 from whooping-cough, 3 from enteric fever, 29 from diarrhœa (against an average of 3 for the corresponding week of the last ten years), 1 from dysentery, and 1 from erysipelas. Twenty-six of the 29 deaths from diarrhœa were of children under 5 years of age, 20 being infants under 1 year old.

Eleven cases of enteric fever were admitted to hospital, being 3 in excess of the admissions for the preceding week: 8 enteric fever patients were discharged, 1 patient died, and 33 remained under treatment on Saturday, being 2 over the number in hospital on Saturday, July 8.

The number of cases of scarlatina admitted to hospital was 8, being 1 under the admissions for the preceding week, and 3 under the number for the week ended July 1. Eight patients were discharged, and 53 remained under treatment on Saturday, being equal to the number in hospital at the close of the preceding week.

The hospital admissions for the week included, also, 2 cases of measles and 1 case of typhus: 8 cases of the former and 6 of the latter disease remained under treatment in hospital on Saturday.

Twenty-four deaths from diseases of the respiratory system were registered, being equal to the average for the corresponding week of the last ten years, and 2 over the number for the week ended July 8. They comprise 8 from bronchitis, 13 from pneumonia or inflammation of the lungs, and 2 from croup.

## METEOROLOGY.

*Abstract of Observations made in the City of Dublin, Lat. 53° 20' N.,  
Long. 6° 15' W., for the Month of June, 1893.*

|                                                    |   |   |   |                |
|----------------------------------------------------|---|---|---|----------------|
| Mean Height of Barometer,                          | - | - | - | 30·002 inches. |
| Maximal Height of Barometer (on 7th, at 9 a.m.),   | - | - | - | 30·398 „       |
| Minimal Height of Barometer (on 27th, at 11 p.m.), | - | - | - | 29·320 „       |
| Mean Dry-bulb Temperature,                         | - | - | - | 59·9°.         |
| Mean Wet-bulb Temperature,                         | - | - | - | 56·1°.         |
| Mean Dew-point Temperature,                        | - | - | - | 52·8°.         |
| Mean Elastic Force (Tension) of Aqueous Vapour,    | - | - | - | ·402 inch.     |
| Mean Humidity,                                     | - | - | - | 78·5 per cent. |
| Highest Temperature in Shade (on 19th),            | - | - | - | 74·7°.         |
| Lowest Temperature in Shade (on 23rd),             | - | - | - | 46·9°.         |
| Lowest Temperature on Grass (Radiation) (on 23rd)  | - | - | - | 42·8°.         |
| Mean Amount of Cloud,                              | - | - | - | 46·2 per cent. |
| Rainfall (on 12 days),                             | - | - | - | 1·716 inches.  |
| Greatest Daily Rainfall (on 26th),                 | - | - | - | ·492 inch.     |
| General Directions of Wind,                        | - | - | - | E., N.W., S.E. |

*Remarks.*

June, 1893, was the fourth month in succession with a mean temperature above average and a rainfall below average. The month under review did not—it is true—“break the record” as regards either high temperature or scanty rainfall; but it was in all respects most favourable. In Dublin rain fell freely from the 3rd to the 6th inclusive (·521 inch) and again from the 22nd to the 28th inclusive (1·144 inches), but the weather was otherwise dry, except for local thunder-showers on the 15th.

In Dublin the arithmetical mean temperature (59·9°) was above the average (57·8°) by 2·1°; the mean dry bulb readings at 9 a.m. and 9 p.m. were also 59·9°. In the twenty-eight years ending with 1892, June was coldest in 1882 (M. T. = 55·8°), and in 1879 (the “cold year”) (M. T. = 55·9°). It was warmest in 1887 (M. T. = 62·3°), in 1865 (M. T. = 61·0°), and in 1868 (the “warm year”) (M. T. = 60·5°). In 1886 the M. T. was 57·5°; in 1888, 56·2°; in 1889, 59·5°; in 1890, 58·1°; in 1891, 59·0°; and in 1892, 56·7°.

The mean height of the barometer was 30·002 inches, or 0·085 inch above the corrected average value for June—namely, 29·917 inches. The mercury rose to 30·398 inches at 9 a.m. of the 7th, and fell to 29·320 inches at 11 p.m. of the 27th. The observed range of atmospherical pressure was, therefore, 1·078 inches—that is, less than an inch and one-tenth.

The mean temperature deduced from daily readings of the dry bulb



thermometer at 9 a.m. and 9 p.m. was  $59.9^{\circ}$ , or  $4.6^{\circ}$  above the value for May, 1893. Using the formula, *Mean Temp.* = *Min.* + (*max.*—*min.*  $\times .465$ ), the value was  $59.4^{\circ}$ , or  $2.2^{\circ}$  above the average mean temperature for June, calculated in the same way, in the twenty-five years, 1865–89, inclusive ( $57.2^{\circ}$ ). The arithmetical mean of the maximal and minimal readings was  $59.9^{\circ}$ , compared with a twenty-five years' average of  $57.8^{\circ}$ . On the 19th the thermometer in the screen rose to  $74.7^{\circ}$ —wind, N.N.E.; on the 23rd the temperature fell to  $46.9^{\circ}$ —wind, N.N.W. The minimum on the grass was  $42.8^{\circ}$  also on the 23rd.

The rainfall amounted to 1.716 inches, distributed over 12 days. The average rainfall for June in the twenty-five years, 1865–89, inclusive, was 1.817 inches, and the average number of rainy days was 13.8. The rainfall was, therefore, slightly below, while the rainy days were also below the average. In 1878 the rainfall in June was very large—5.058 inches on 19 days; in 1879 also 4.046 inches fell on 24 days. On the other hand, in 1889, only .100 of an inch was measured on 6 days; in 1887 the rainfall was only .252 of an inch, distributed over only 5 days; in 1874 only .405 of an inch was measured on 9 days; and in 1868 only .677 of an inch fell on but 6 days. In 1888 the rainfall was as much as 3.045 inches, distributed over as many as 18 days. In 1890 it was 1.930 inches on 18 days, in 1891 2.753 inches on 14 days, and in 1892 1.671 inches on 17 days.

High winds were noted on 7 days, but the force of a gale was attained on only one occasion—the 28th. Temperature reached or exceeded  $70^{\circ}$  in the screen on 5 days, compared with 17 days in 1887, only 1 day in 1888, 10 days in 1889, only 2 days in 1890, 6 days in 1891, and 4 days in 1892. Thunder was heard on the 15th. A solar halo was seen on the 11th.

On Thursday, the 1st, a depression which had for several days lain almost motionless over the south of Sweden dispersed, and an irregular area of low pressure began to form over Ireland. The weather, however, remained dry until Saturday, the 3rd, when electrical showers fell heavily in places, particularly at Blackrock, Co. Dublin. Thunder was heard on this day at Glasnevin Botanic Gardens.

At the beginning of the week ended Saturday, the 10th, the weather was unsettled and showery, owing to the presence of shallow irregular depressions to the northward, while an anticyclone lay over the Bay of Biscay. In Dublin rain fell very freely on Monday and in smaller quantity on Tuesday. On Sunday thunderstorms occurred all along the east coast of Great Britain. During most of this changeable time the barometer rose steadily, so that by 8 a.m. of Wednesday readings were everywhere high and remarkably uniform. In fact, at the hour named, the extreme difference in atmospherical pressure all over the United Kingdom was only .08 inch—the highest reading being 30.42 inches at

Yarmuth, and the lowest 30·34 inches in the Scilly Islands. After Wednesday the anticyclone held to the close of the week, the area of highest pressure being found off the east coast of Scotland, where dense fogs and low temperature prevailed. In most other parts of the Kingdom summer warmth daily increased until Saturday—the thermometer rising to 79° at Loughborough on Wednesday, 76° at Liverpool on Thursday, and 74° at Parsonstown and in London on Friday. On the evening of this day a thunderstorm with heavy rain (1·19 inches) occurred at Parsonstown. In Dublin the mean height of the barometer was 30·313 inches, pressure ranging between 30·105 inches at 9 a.m. of Sunday (wind, W. by S.) and 30·398 inches at 9 a.m. of Wednesday (wind, N.E.) The corrected mean temperature was 58·9°. The mean dry bulb readings at 9 a.m. and 9 p.m. were 59·2°. On Thursday both maximal and minimal temperatures for the week were recorded—viz., 69·6° and 49·5°—range, 20·1°. Rain fell on the first three days to the amount of 512 inch, ·259 inch being registered on Sunday and ·201 inch on Monday. The prevailing winds were at first W.S.W., afterwards E. Much fog and haze prevailed in the Irish Sea after Wednesday, so that the fog-gun at the Kish-bank lightship was frequently fired both by day and by night.

Splendid weather characterised the week ended Saturday, the 17th. Until Wednesday it was cool as well as fair, but on and after that day temperature was high and summerlike by night as well as by day. On Sunday local thunderstorms occurred in the N. and N.W. of Ireland, notwithstanding an anticyclonic distribution of atmospheric pressure. After Sunday a shallow depression advanced northwards across France. It caused thunderstorms and heavy rains over the greater part of that country, but in the British Isles only local thundershowers occurred, although thunder and lightening were very prevalent on Wednesday and Thursday. On the afternoon of the latter day thundershowers fell in Dublin, yielding ·051 inch of rain, the only rainfall of the week. In this city the influence of easterly seabreezes in lowering day-temperature was well seen, particularly in the earlier part of the period—thus, the maxima of the first four days were 66°, 65°, 65°, and 67° in Dublin, compared with 75°, 70°, 71°, and 75° at Parsonstown. On the east coast of Great Britain, similarly, the thermometer failed to reach 60° at most stations on Sunday and Monday. In Dublin the mean height of the barometer was 30·104 inches, pressure decreasing from 30·229 inches at 9 a.m. of Sunday (wind, E.N.E.) to 29·883 inches at 9 a.m. of Wednesday (wind, E.), and then increasing to a maximum of 30·373 inches at 9 p.m. of Saturday (wind, E.). The corrected mean temperature was 61·8°. The mean dry bulb readings at 9 a.m. and 9 p.m. were 62·9°. On Tuesday the screened thermometers fell to 50·1°, on Saturday they rose to 72·9°. The mean direction of the wind was easterly.

As to the week ended Saturday, the 24th—at first summerlike in the extreme—very warm, calm and bright—the weather afterwards fell into a very unsettled state, becoming cold, squally, and showery after Wednesday, the 21st—the longest day. On Sunday, the anticyclonic isobar of 30·3 inches embraced nearly the whole of the British Islands—at 8 a.m. the extreme pressures at mainland stations differed by only *one-tenth* of an inch, the highest readings being 30·38 inches at Loughborough, Cambridge, Malin Head, and Belmullet; the lowest being 30·28 inches at Prawle Point, in Devon. The weather was bright, calm, and hot—the thermometer rising to 86° in the shade at Cambridge and Loughborough, and to 80° even at Parsonstown and Valentia Island. In the evening a thunderstorm occurred at the last-named station. On Monday the heat was still more intense—88° in the shade being recorded in London and at Cambridge. Thunderstorms occurred towards evening in the South of Ireland, South Wales, and the eastern and south-eastern parts of England. After this a cold northerly current passed rapidly southwards, bringing heavy showers which became general during the last three days. On Thursday a depression formed over Scotland and moved slowly south-eastwards and finally eastwards, becoming deeper and larger as it travelled. At 8 a.m. of Friday the barometer was down to 29·24 inches at Shields, and below 29·30 inches all over the north of England and south of Scotland. In Dublin the mean pressure was 29·846 inches, the barometer falling from 30·360 inches at 9 a.m. of Sunday (wind, E.), to 29·467 inches at 9 a.m. of Friday (wind, N. by W.). The corrected mean temperature was 59·0°—that for Sunday and Monday having been 65·8°. The mean dry bulb temperature at 9 a.m. and 9 p.m. was 58·7°. On Monday the thermometers in the screen rose to 74·7°; on Friday they fell to 46·9°. Rain fell on the last three days to the amount of ·310 inch, ·130 inch being measured on Thursday and ·100 inch on Saturday. The prevalent wind was northerly—N.N.E. to N.W.

During the closing period of the month—from the 25th to the 30th inclusive—the weather presented two distinct types. Unsettled, squally and showery as well as cool at first, it improved after Wednesday, the 28th, and the month closed with fine, warm, and in all respects summerlike conditions. On Sunday, the 25th, the well-defined depression, which had travelled from Scotland in a south-easterly direction on the previous Friday (see above), lay with its centre over the south of Norway. N.W. winds and cool, showery weather prevailed in the British Islands. In Dublin heavy showers fell locally at 3 30 and 11 p.m. Next day (Monday) an irregularly-shaped depression passed northwards across Ireland, causing a heavy rainfall in the south of this country (1·10 inches at Roche's Point, Cork), and in Wales and parts of England. During Tuesday and Wednesday a well-marked cyclonic system travelled north-eastwards from the N. of Ireland and across Scotland to the Norwegian

Sea, where it dispersed. This disturbance produced moderate to fresh S.W. and W. gales at some Irish stations, as well as in the English Channel and off the mouth of the Thames. The barometer now rose quickly, and at 8 a.m. of Friday, the 30th, atmospherical pressure was uniformly high all over the kingdom—pressure ranging only from 30·20 inches over Central England to 30·05 inches at Belmullet. Quiet, bright, summerlike weather was the consequence, and so the month closed. In Dublin, during this period, the barometer ranged from 29·320 inches at 11 p.m. of Tuesday (wind, S.S.W.) to 30·142 inches at 9 a.m. of Friday (wind, S.E.). As regards temperature, on Monday and Friday the minimum in the thermometer screen was 50·0°; on Tuesday the maximum was 69·4°. Rain fell on the first four days of the period to the amount of ·834 inch, ·492 inch being registered on Monday. This was the maximal fall in 24 hours recorded during the month. The prevailing winds were S.E. and S.W.

The rainfall in Dublin during the six months ending June 30th amounted to 9·624 inches on 78 days, compared with 11·770 inches on 97 days in 1892, 8·748 inches on 77 days in 1891, 13·413 inches on 94 days in 1890, 10·576 inches on 97 days in 1889, 12·113 inches on 87 days in 1888, 6·741 inches on 67 days in 1887, and a twenty-five years' average of 12·313 inches on 95·4 days.

At Knockdolian, Greystones, Co. Wicklow, the rainfall in June, 1893, was 2·211 inches, distributed over 10 days. Of this quantity ·750 inch fell on the 26th, and ·410 inch on the 5th. The total fall since January 1 has been 11·776 inches on 75 days.

The rainfall at Cloneevin, Killiney, Co. Dublin, amounted to 1·63 inches on 10 days. The greatest fall in 24 hours was ·61 inch on the 26th. The average rainfall for June in eight years was 1·42 inches on 11·5 days. There was absolute drought from the 7th to the 21st, both days inclusive. Since January 1, 1893, 9·69 inches of rain have fallen on 77 days, the average rainfall for the six months ending June 30 having been in eight years 10·66 inches on 82 days.

#### METRIC SYSTEM IN PRESCRIPTION WRITING.

ELI H. LONG, M.D., suggests (*Medical News*, Philadelphia, Vol. LXII., No. 12) that the metric system can be easily used, even by those who know nothing of the metric tables, by remembering that grams and cubic centimetres are to grains and minims in the proportion of *about* 16 to 1 really (15·43 and 16·23 respectively). His plan is to order 16 doses, and to order as many grams and cubic centimetres of the substance in the whole bottle as he wants grains and minims in each dose. An 8-oz. bottle with  $\bar{3}$ ss. doses and a 2-oz. bottle with  $\bar{3}$ i. doses can thus be ordered.



## PERISCOPE.

### MEDICAL SICKNESS, ANNUITY, AND LIFE ASSURANCE SOCIETY.

THE monthly meeting of the Executive Committee of this Society was held on June 8th, at the offices of the British Medical Association. The chair was taken by Dr. F. de Havilland Hall, and there were also present Mr. Frederick Wallace, Dr. J. Pickett, Dr. W. Knowsley Sibley, Mr. F. Swinford Edwards, Dr. M. Greenwood, Mr. Edward Bartlett, and Dr. A. S. Gubb. The usual accounts were produced, and showed that the Society continued steadily to increase in prosperity. During the month of May £252 5s. had been expended in the form of sick pay to members who from illness or accident were incapacitated from following their profession, some of the cases being of a very sad nature. The current sick claims were carefully examined, and the committee satisfied themselves that the members in question were still entitled to sick benefit. Certain of the new proposals were also carefully examined, as the management are determined to admit only really sound lives to the benefits of the Society. Like all successful associations, the Medical Sickness, Annuity, and Life Assurance Society has to face the difficulty of finding satisfactory investments for its ever-growing funds, and a long discussion upon this subject took place at the meeting. These funds now amount to nearly £70,000, and great care has to be exercised in order that this sum shall produce a fair rate of interest, and at the same time be invested in perfectly safe securities. The care with which the new cases have been examined has made the sickness experience of this Society very favourable, and this, combined with the exceptional economy exercised in its management, has produced large reserves, so that the question of the investment of the funds is of high importance. Prospectuses, forms of proposal, and full information will be forwarded on application to the Secretary, Medical Assurance Society, 33 Chancery Lane, W.C.—*British Medical Journal*.

### JOHNS HOPKINS HOSPITAL.

WE take the following figures from the Statistical Tables of this institution for the year ending 31st Jan., 1892:—1,969 white patients were treated: 807 medical, 580 surgical, 582 gynæcological; with a mortality in the three classes respectively of 8·3, 4·1, and 2·7 per cent. The medical diseases numerically greatest were: typhoid (64), phthisis pulmonalis (56), malarial fever (50), neurasthenia (47). On the surgical side 25 cases of carcinoma were treated and 19 of epithelioma, 23 of hæmorrhoids and 22 of fistula in ano. Of the *coloured* population 307 were treated: 115 for medical, 80 for surgical, and 112 for gynæcological

diseases. The death-rates were: 25·2, 5·0, and 0·0 per cent. On the medical side, 12 were treated for "arterial sclerosis," 8 for phthisis pulmonalis, 7 for mitral insufficiency, 6 for chronic nephritis, and 6 for typhoid fever. Tuberculosis and tuberculous abscesses contributed 16 cases to the surgical wards. From the table of nationalities we find that the five countries supplying the largest percentages of patients were:—United States (68·6), Germany (16·4), Ireland (5·1), England (2·6), and Russia (2·2).

#### EUCALYPTUS OIL.

WE recently noticed a case in which the oil obtained from the *Eucalyptus globulus* had been used successfully in the treatment of puerperal fever. The dose was three minims. The *Australasian Medical Gazette* reports a case of fatal poisoning with this drug, which occurred in New Norfolk, Tasmania. Dr. Andrew Neale states that "a little over half an ounce" was taken by a boy of ten. He was in perfect health, but, the rest of the family having colds, he swallowed the oil as a preventive, recalling the well-known epitaph, "I was well. I would be better. Here I lie." He died in 15 hours. Other cases are mentioned in which "serious symptoms" followed doses of one drachm; but this appears to be the only clearly fatal case on record. The oil appears to be a favourite domestic remedy in those parts.

#### GERMICIDAL PROPERTIES OF NUCLEINS.

DRS. VAUGHAN, NOVY, and MCCLINTOCK have an important paper (*Medical News*, Philadelphia, Vol. LXII., No. 20) on the germicidal properties of nucleins. The action of testicular, thyroid, and yeast nuclein on various germs was tested. The authors suggest that the germicidal constituent of blood-serum belongs to the nucleins.

#### SYMPHYSEOTOMY.

WE observe a tendency to the revival of this obsolete and somewhat brutal operation. *La Puglia Medica* is a new monthly, published in Bari, edited by Dr. Zuccaro, and promising well in its first two numbers. Other countries, it says in its opening page, have academies, scientific societies, libraries, but from Naples to Sicily there is none of such things—"scientific patriotism languishes, and emulation is non-existent." The new journal is intended to supply, as far as possible, the need. The principal paper in the numbers before us is Dr. Campione's "Considerazioni Storico-Statistiche sulla Simfiscotomia," in which he gives a history of the operation and a summary of results. In 1768 it was designed by Sigault; in 1886 Prof. Morisani, in a paper read before the Società Italiano di Ostetricia e Ginecologia, pronounced the operation one which "can and ought to be permanently established in practice, and which, in skilful hands, is capable of giving excellent results; in 1892 Dr. Harris,

of Philadelphia, published "The Remarkable Results of Antiseptic Symphyseotomy." The results of the operation are summarised in Dr. Campione's paper. In 81 years (1777-1858) 80 cases were recorded, in the practice of 41 individuals—34 of them in Italy and 29 in France, one only in England. In these the maternal mortality was 35·0, the foetal 55·5 per cent. In the period 1866-1880, 50 operations were performed in two Neapolitan hospitals with better results—20 per cent. mortality of mothers, 18 of children. Between May, 1881, and January, 1886, 18 operations (in Naples) gave a maternal death-rate of 44·4: foetal, 27·7. Harris, of Philadelphia, reported subsequently 54 cases, occurring from January, 1886, to October, 1892, to which Dr. Campioni adds 7. Of these 61 operations, 35 were performed in Naples, 12 in Paris, 4 in the United States. 59 mothers and 55 children survived. This carefully compiled paper deserves the attention of obstetricians.

#### CITY WATER SUPPLY.

*Lo Sperimentale* quotes from *Ingegnaria Sanitaria* a paper by S. Saccarelli on the quantity of water distributed daily in 14 large European cities and New York; and also in 29 Italian cities and towns. The tables give only populations and quantity of water in litres, so that comparison is difficult. We have, therefore, calculated from them the *number of inhabitants to one litre of daily water-supply*, and arranged the cities in order of abundance of supply, giving the general table in full, and the principal towns of the Italian table. Litres can, of course, be converted to gallons by dividing by 4·5:—Marseille, 954; Cologne, 1,518; Lisbon, 1,529; Leipsig, 1,863; Berlin, 2,078; Lyon, 2,233; Hamburg, 2,275; Warsaw, 2,941; New York, 3,017; Dresden, 3,200; Breslau, 3,986; Brussels, 5,241; Paris, 9,231; Vienna, 10,809; London, 30,000. Of the 29 Italian cities, only nine enjoy more than 150 litres (33 gallons) per head per day, which is taken as the necessary supply by Italian sanitary engineers. Brescia has 265 inhabitants for each litre of daily water-supply, Padua 324, Rome 425, Genoa 589, Naples 2,048, Florence, 3,387, Venice 3,659, Bologna 4,269, Turin 4,571.

#### TREATMENT OF FLAT-FOOT.

A. CLAY, M.R.C.S. (*Birmingham Medical Review*, June, 1893), describes the treatment of flat-foot under six heads:—(1) Massage with lin. saponis; (2) bathing with sea-salt; (3) exercise; (4) manipulation; (5) tenotomy; (6) use of special boots. Speaking generally, "I may say that in early cases, 1, 2, and 3 are all that will be required. In more advanced cases—but still uncomplicated by rigidity—boots will be required in addition to the foregoing; and finally, in rigid cases the whole of the above must be considered as necessary adjuncts to effect a cure." Under the heading of *Exercise* the following hints are given:—"Extension and

flexion of the ankle, but especially adduction or inversion of the foot when the inward turn is impeded by the surgeon resisting. Then three or four times a day patients should be instructed to walk bare-foot (or in the stocking-feet), on their toes many times backwards and forwards across the room. This should be done deliberately, and care taken not to get the instep too vertical, as in this position the weight of the body is supported more by the bones than muscles." "Walking must be enforced, the boots being constructed on anatomical principles; and care should be taken that the toes are kept quite in front of the patient, and fairly big strides taken."

#### KEELEYISM.

B. D. EVANS, M.D. (*Medical News*, Philadelphia, Vol. LXII., No. 18), after an exhaustive analysis of a large number of cases treated at Keeley Institutes, comes to the following conclusions:—1. That it is, as Dr. Keeley says, "A system"—a system of charlatanism of large proportions. 2. That the system is carried into effect in a purely mechanical way, and that the "Institute physicians" are little less than local commercial agents, knowing nothing of the "cure" which they handle and administer. 3. That the statistics published by the "Keeley people" cannot be relied upon in the slightest, inasmuch as secrecy is their motto, whenever and wherever it pays in gold. 4. That their so-called cure contains dangerous and poisonous drugs, calculated, by the indiscriminate manner in which they are administered, to produce insanity and other serious psychoses. 5. That the remedy has an intoxicating and exhilarating effect, and that many of the finely written testimonials are written while the patients are under this influence. 6. That secrecy is maintained purely for the purpose of enhancing the commercial value of the commodity, and not because a valuable discovery has been made—speculating upon the fact that with the masses *omne ignotum pro magnifico* holds good. 7. That many ministers and prominent gentlemen who have spoken publicly in behalf of Keeley remedies and methods were actuated to do so by a desire to welcome any agency that would alleviate the evils of alcoholism, and not by any knowledge of the real merits of the "cure" or the nature of the results that follow its use. 8. That any physician who allows himself to indorse the Keeley cure, either in words or by advising a patient to take it, not only commits an act unprofessional, but forfeits his right to the respect of his professional brethren.

#### ACTION OF ALCOHOL UPON FROG-SPAWN.

DR. J. J. RIDGE reports (*Medical Pioneer*, June, 1893) experiments on frog-spawn kept in solution of alcohol of various strengths. Even such a weak solution as 1 in 10,000 kept a large number from developing, and those so developed died several days sooner than those in water.



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THE CHEMIST AND DRUGGIST (London), 28/1/93.

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property in Buckinghamshire, which would enable them to manufacture Liquor Carnis and its various preparations in a district where cattle could be obtained fresh from the fields, and where a factory could be placed in surroundings that were healthful and open. Mr. Shepperson adds that the 'factory is considered to be perfect, and it is the only one of its kind in Europe.' The company is to be congratulated on the progress which it is making under the enterprising manager's direction.”

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\* \*

"(Signed),

"REGINALD G. ALEXANDER, M.A., Can., M.B.,

*Hon. Senr. Phys. to the Bradford Infirmary;*

*Consulting Phys. to the Lords of the Admiralty.*

"MANOR CHAMBERS, Bradford, Feb. 2nd, 1881."

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The Drink for the Gouty and Rheumatic.

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**Bullock's Acid Glycerine of Pepsine.** DOSE— 1 to 2 drms.

In this preparation advantage has been taken of the solubility of Pepsine in Glycerine to produce a convenient and desirable liquid form of this valuable medicine; whilst the preservative qualities of the menstruum confer upon the Acid Glycerine of Pepsine the property of keeping for any length of time.

May be prescribed with most substances compatible with Acids.  
In 4-oz., 8-oz., and 16-oz. Bottles, and in Bulk.

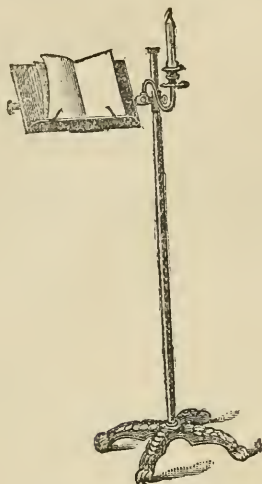
The published experiments of G. F. DOWDESWELL, Esq., M.A., Cantab., F.C.S., F.L.S., &c., Dr. PAVY, Professor TUSON, the late Professor GARROD, Dr. ARNOLD LEES, and others, conclusively demonstrate the excellence, high digestive power, and medicinal value of the above preparations.

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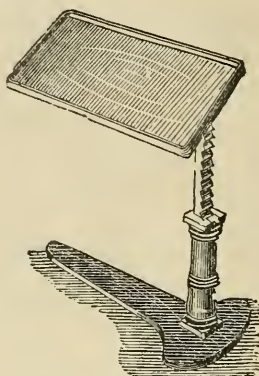
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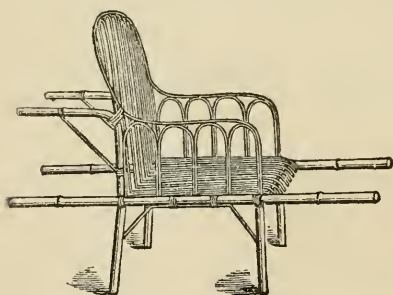
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| Polished Walnut Desk | - | - | - | £1 1 0 |
| Circular Tube        | - | - | - | 0 7 6  |
| Brass Lamp           | - | - | - | 0 10 6 |

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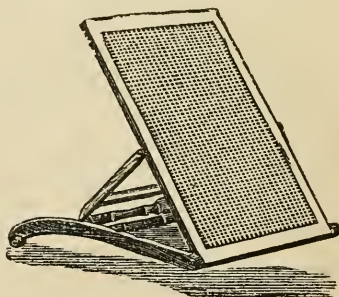
This can also be used, as shown above, as a  
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|---------------------------|---|--------|
| Birch polished any colour | - | £2 5 0 |
| Walnut, Mahogany, or Oak  | - | 3 3 0  |

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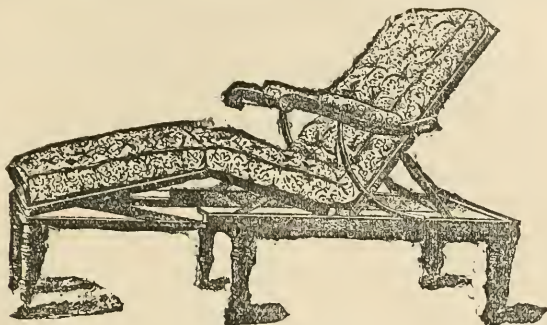
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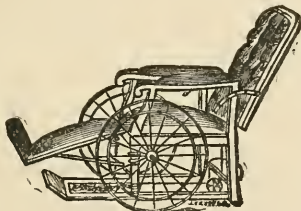
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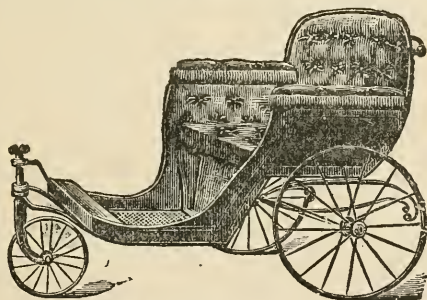
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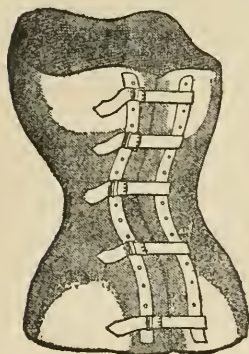


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## Instructions for Measurement, &c.

### **JACKET** (*in cases of slight deformity*).

Circumference at axilla.

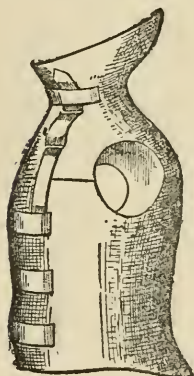
„ waist.

„ hips.

Length from axilla to great trochanter.

In severe angular cases circumference over apex of curve, position of same, and contour should be given; in lateral cases a description of the case.

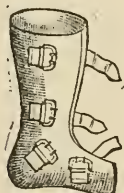
In all cases it should be stated if for male or female.



### **CERVICAL JACKET.**

Same measurements required, and circumference at neck, and length from neck to axilla.

Any part of the Jacket can in the process of Manufacture be left Soft.



### **CLUB FOOT.**

Circumference below knee.

„ ankle.

„ heel and instep.

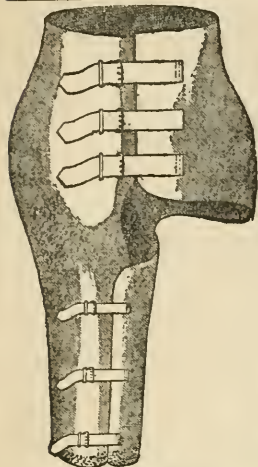
Length from below knee to ground.

„ of foot.

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# Cocking's Adaptable Poroplastic Jackets and Splints.



Instructions for Measurement, &c.

## HIP SPLINT.

Circumference at waist.

" hips.  
" thigh, top of  
" above knee.

Length from waist to groin.

State if for right or left side.



## LEG SPLINT.

Circumference at top of thigh.

" above knee.  
" at knee.  
" below knee.  
" calf.  
" ankle.

Length from groin to centre of knee.

" centre of knee to ankle.

State if for right or left leg.

When the foot-part is required, also circumference of heel and instep, and length from centre of knee to ground.

If the limb is contracted the contour should be given.

Splints are also made in Poroplastic for fracture of Inferior Maxilla, Humerus, Elbow-Joint, Forearm, Thigh, Knee-Joint, Leg, Shoulder-Joint, Hand, &c.

These Splints can be fitted perfectly to the Patient if softened either by hot water or in a Heater made for the purpose. When mounted with webbing, hot water will do; if with leather, a Heater should be used. The material becomes quite hard again in two or three minutes.

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(*Hockin*). 

Each Dram equal to Podophyllin Resin,  $\frac{1}{4}$  gr.

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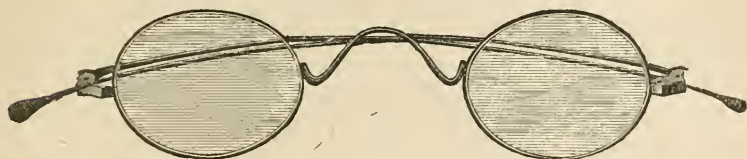
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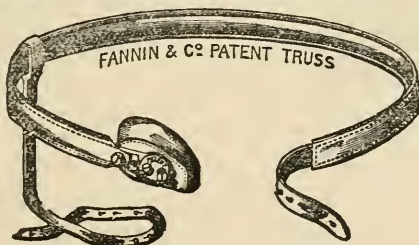
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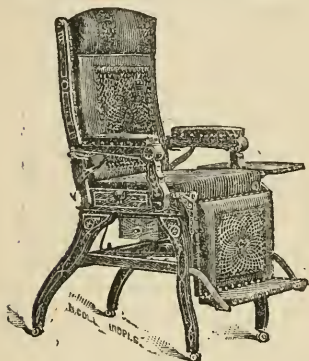
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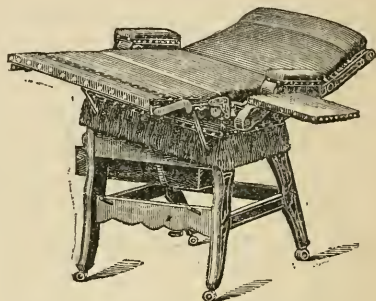
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This Chair has been specially constructed to meet the wants and requirements of the Profession. It is simply constructed, with perfect adjustment, strength, and convenience, without those complications noticeable in other chairs. It can be easily moved to its different positions by the operator without changing his position.



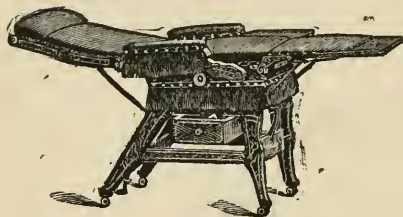
**Normal Position.**

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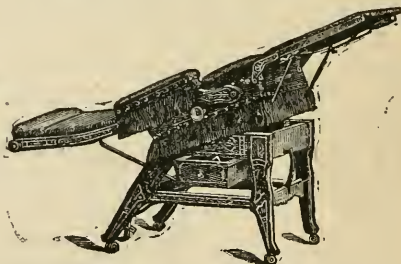


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| " Jalapae, gr. viij                        | Aloin, gr. 1-8th          |       |       |                         |                                     |        |       |       |
| " Colocynth, gr. vj.                       | Leptandrin, gr. 1-16th    |       |       |                         |                                     |        |       |       |
| " Hyd. Subchlor., gr. iv.                  | Podophyllin, gr. 1-8th    |       |       |                         |                                     |        |       |       |
| " Sapo. Hyssop., gr. iv.                   | Pulv. Cambog., gr. 1-32nd |       |       |                         |                                     |        |       |       |
| Gingerin, gr. ij.                          | Ext. Hyosey., gr. 1-8th   |       |       |                         |                                     |        |       |       |
|                                            |                           |       |       |                         | Capsicine, gr. 1-64th               |        |       |       |
|                                            |                           |       |       |                         | <b>"Little" Aperient.</b>           |        |       |       |
|                                            |                           |       |       |                         | 68 ALOIN, gr. 1-10th                | } 0 7  | 0 6   | 0 5   |
|                                            |                           |       |       |                         | Podophyllin, gr. 1-5th              |        |       |       |
|                                            |                           |       |       |                         | Ext. Hyosey., gr. 1-20th            |        |       |       |
|                                            |                           |       |       |                         | Jalapin, gr. 1-10th                 |        |       |       |
|                                            |                           |       |       |                         | Ext. Nuc. Vom.                      |        |       |       |
|                                            |                           |       |       |                         | Capsicine, aa. gr. 1-20th           |        |       |       |
|                                            |                           |       |       |                         | <b>"Little" Cough.</b>              |        |       |       |
|                                            |                           |       |       |                         | 412 MORPH. HYDROCHLOR., gr.         | } 0 7  | 0 6   | 0 5   |
|                                            |                           |       |       |                         | 1-36th                              |        |       |       |
|                                            |                           |       |       |                         | Pulv. Scillae                       |        |       |       |
|                                            |                           |       |       |                         | Pulv. Ipecac., aa. gr. 1-12th       |        |       |       |
|                                            |                           |       |       |                         | Bals. Tolu, gr. 1-4th               |        |       |       |
|                                            |                           |       |       |                         | <b>"Little" Liver.</b>              |        |       |       |
|                                            |                           |       |       |                         | 410 PODOPHYLLIN, gr. 1-4th          | } 0 7  | 0 6   | 0 5   |
|                                            |                           |       |       |                         | Ext. Cascara, gr. 3-4ths            |        |       |       |
|                                            |                           |       |       |                         | Capsicine, gr. 1-20th               |        |       |       |
|                                            |                           |       |       |                         | <b>"Little" Cathartic.</b>          |        |       |       |
|                                            |                           |       |       |                         | 398 HYDRARG. SUBCHLOR.              | } 0 10 | 0 9   | 0     |
|                                            |                           |       |       |                         | Jalapin, aa. gr. ss.                |        |       |       |

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